

US EPA ARCHIVE DOCUMENT

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Appendix I
Permit Matrix for the Pulp and Paper Sector

The following table is meant to compare the content/requirements of the European IPPC permitting system with US environmental requirements for a similar source. Three IPPC documents are summarized in the middle three columns of the table: the EU BREF (the European general reference document for BAT); the UK Technical Guidance for the Pulp and Paper sector (the UK distillation of BAT requirements for pulp and paper facilities in the UK; and the UK IPPC permit conditions (which result from application of BAT in the UK’s version of IPPC permitting) for the St. Regis facility. The first column organizes the requirements according to the UK Technical Guidance format. The far right column includes the corresponding US requirements.

Requirement	UK Technical Guidance	St. Regis Permit -- UK	St. Regis Improvement Program
2. TECHNIQUES FOR POLLUTION CONTROL			
Management Techniques	Must have environmental management system in place. Must include: <ul style="list-style-type: none">· Identification of key environmental impacts· Objectives/goals for environmental performance· Program to implement goals· Periodic monitoring for environmental performance of installation· Monitoring feedback on goals; commitment to improve goals, as appropriate· Regular audit, internal and independent· Regular reporting of environmental performance· Clear allocation of responsibilities for environmental performance· Monitoring and control systems· Procedures to analyze faults and prevent recurrence· Adequate staff training- Preventive maintenance programs· Procedures for responding to complaints/incidents· Incorporation of environmental issues in all other relevant aspects of the business	2.1.1 [The company documented obtaining ISO 14001 accreditation for their EMS (copy of certificate provided to EA). This and supplemental information from the company response to a Schedule 4 notice demonstrates that a robust, measurable EMS with an emphasis on continuous improvement is in place.] The Permitted Installation shall, subject to the conditions of this Permit, be managed and controlled as described in the documentation specified in Table 2.1.1, or as otherwise agreed in writing by the Environment Agency. [Table 2.1.1 refers to the company response to question 2.1 on pages 4-6 of the application and to Responses 1 and 2 to a Schedule 4 notice.] 2.1.2 All plant, equipment and technical means used in operating the Permitted Installation shall be maintained in good operating condition. 2.1.3 The Permitted Installation shall be supervised by staff who are suitably trained and fully conversant with the requirements of this Permit. 2.1.4 A copy of this Permit and those parts of the application referred to in this Permit shall be available, at all times, for reference by all staff carrying out work subject to the requirements of the Permit. 2.1.5 All staff shall be fully conversant with those aspects of the Permit conditions, which are relevant to their duties and shall be provided with appropriate training and written operating instructions to enable them to carry out their duties. 4.1.4 Where the Operator has a formal environmental management system applying to the Permitted Installation which encompasses annual improvement targets the Operator shall, not later than 31 January in each year, provide a summary of the previous year's progress against such targets.	
MATERIALS INPUTS			
	<ul style="list-style-type: none">· Maintain list of raw materials used on site· List in application materials which have potential for significant environmental impact and include: chemical composition, quantities used, fate of the material, reasonably practicable alternatives with lower environmental impact· Justify the continued use of substances for which there is a less hazardous alternative· Must have procedures to stay aware of new developments· Quality assurance procedures for content of raw materials· Timber, wood chips should not have been sprayed with harmful substances (such as pentachlorophenol)· Harmful substances (cadmium and other heavy metals, pentachlorophenol) in recovered paper should be quantified and reported· Minimize use of fresh water disinfectants; use ClO2 instead of halogenated disinfectants for high organic loads in fresh water· Optimize system for wire retentions; quantify retentions· Minimize use of scale control chemicals by minimizing scale formation through raw material selection, maximizing retention, regular machine cleaning and effective showering systems, and avoiding high pH or temp. changes. Minimum impact scale control chemicals should be used· Dispersants/surfactants – use only highly biodegradable chemicals with known degradation products; no alkylphenoethoxylates· Use of biocides should be minimized through other techniques; use biocides with rapid degradation and known degradation products· Use only fully biodegradable defoamers with safe degradation products	2.2.1 The Operator shall use raw materials (including water) as described in the documentation specified in Table 2.2.1, or as otherwise agreed in writing by the Environment Agency. [Table 2.2.1 refers to the company response to question 2.2 given on pages 6-14 of the company application. These pages describe the material inputs to the various processes at the site and what the materials are used for. Also described are the company's efforts to regularly review material selection and usage for efficiency and effectiveness and environmental compatibility (as part of executing their EMS).]	<p>For the demonstration of BAT and continual improvement with regard to fiber usage, the following improvement items have been added to the permit. The items relate to further fibre recovery systems and the evaluation and implementation of COD reduction measures for the operator’s site effluent discharge and waste audit:</p> <p>9.6 The Operator shall provide details of the proposed fiber recovery project to reduce suspended solids discharge to the Severn Estuary. The review shall include a justified BAT assessment for the chosen option. <u>Status:</u> A letter dated May 20, 2002 from St. Regis gave details of the BAT analysis for reducing suspended solids in discharges to the Severn Estuary. Installation of a Dissolved Air Flotation unit was said to represent BAT (one of the options in the technical guidance document for the industry). St. Regis said installation and commissioning would be completed by the end of 2002. [See also row 3.9 - Particulate and Suspended Solids.]</p> <p>9.22 The Operator shall upgrade the existing recovered paper pulping facilities to increase the proportion of waste based product and hence the COD concentration in the liquid effluent discharge. A report detailing the plant upgrade will be provided by 4/30/03 with a report detailing the installation and market development to be completed annually thereafter. <u>Status:</u> St. Regis’ letter of 5/1/03 indicated that the company had been unable to effect the planned changes at the facility to reduce COD in the plant effluent. The planned conversion to making a new product utilizing a greater percentage of recovered fiber (70%) did not pan out (lack of market for the type of product the mill could produce). Furthermore, shutdown of a competitor mill in Norway provided support for the mill’s existing product. The company’s plans changed to investigating effluent treatment to achieve a 20% COD reduction (see 9.23 below). [Note: Letter indicates economic stress mill was under, considering that markets for their products were declining. Prelude to the mill closure?] EA letter of 5/16/03 asked for verification of the market condition, such as through available independent market surveys. St. Regis letter of 7/3/03 said that the market information was a summary of internal SRP market intelligence, and that published articles on market trends would be sent. St. Regis letter of 4/29/04 stated that the company was pursuing anaerobic treatment of its black liquor, which effectively closed off this item. EA letter of 11/25/05 stated that the required annual update had not been received. St. Regis responded on 12/5/05 stating that although at the time of permit issuance the mill was planning to change to primarily a waste based facility, that plan was abandoned as the mill was unable to sustain an acceptable level of return on the new product mix. The company understood that this item was therefore closed. [See also rows 2.3.5 - NSSC Pulping and Chemical Recovery, 2.3.11 - Decommissioning, 3.4 - COD.]</p> <p>9.23 The Operator shall investigate environmentally beneficial process changes and effluent treatment technologies for the treatment of liquid effluents and provide an annual report having regard to BAT to the EA commencing with 4/30/03. <u>Status:</u> Submittal from St. Regis to EA dated 5/1/03 provided results from the required investigation. Several technologies were mentioned, but only aerobic and anaerobic treatment were considered viable enough for more detailed discussion. Aerobic treatment was ruled out due to excessive operating costs (high energy use) and initial studies on anaerobic treatment were positive enough for St. Regis to propose running a pilot plant trial on site and report back to the EA by Dec. 2003. In a letter dated 5/16/03, EA asked for details of the proposed pilot plant trials and an assessment of environmental impacts prior to implementation. EA letter of 7/21/03 requested program details for the proposed pilot plant trials. St. Regis letter of 7/3/03 referred to an earlier EA/St. Regis meeting and that company was awaiting EA comments on the pilot trial plan. St.</p>

Requirement	UK Technical Guidance	St. Regis Permit -- UK	St. Regis Improvement Program
2.2.1 Raw Materials Selection			<p>Regis letter of 4/29/04 stated that the company was pursuing anaerobic treatment of its black liquor, which effectively closed off this item. EA letter of 11/25/05 that it had indicated to the EA that it was pursuing anaerobic treatment, which effectively closed this item. Subsequently, anaerobic treatment was deemed unaffordable, and the mill has continued to investigate other options under item 9.31.</p> <p>[See also rows 2.3.5 - NSSC Pulping and Chemical Recovery, 2.3.11 - Decomissioning, 3.2/3.2.1 - The Emissions Benchmarks/Standards and Obligations.]</p> <p>9.30 The Operator shall conduct a comprehensive waste audit. This shall identify all of the wastes produced by the installation. For each waste stream identified, state the quantity produced and the current management or disposal method. Information from the audit shall be used to identify opportunities for improved efficiency, changes in process and waste reduction. A copy of the report and action plan shall be submitted to the EA by 6/30/03. The waste audit shall be reviewed every 36 months and recommendations for further improvements shall be incorporated into a report and submitted to the EA within 6 months of each audit.</p> <p><u>Status:</u> St. Regis transmitted the required waste audit report on 7/22/03. It summarized the waste sources and proposed actions to reduce waste. EA letter of 8/19/03 requested expected completion dates for all actions and a final report summarizing waste reductions achieved. In a later letter, 10/21/03, EA requested a final report by 8/31/04. St. Regis responded in a letter dated 10/18/04 which transmitted an update (not a final report) of progress on reducing waste to date.</p> <p>[See also rows 2.5 - Waste Handling, 2.6 - Waste Recovery or Disposal.]</p> <p>9.31 The Operator shall carry out further studies of the impact of their effluent discharges on the interest features of the Severn Estuary Special Protection Area, proposed Special Area of Conservation, RAMSAR and River Wye candidate in support of the submitted Habitats Assessment Report and its conclusions. The scope of the study and report shall be agreed with the EA before commencement. A copy of the final report shall be provided to the EA.</p> <p><u>Status:</u> In a letter dated 11/24/04, St. Regis included a brief report of the impact of their effluent discharges on the Severn Estuary. A potential problem with the smaller continuous release (from the paper machine and recovered paper recycling plant) was identified. The company proposed addressing that problem before beginning work on the anaerobic treatment system (which would now begin in the fiscal year beginning in May 2006). St. Regis identified two options for addressing the continuous effluent's effect. St. Regis provided another update in a letter dated 3/8/05. The letter contained information on further consideration of the two options previously identified for ameliorating the effect of the continuous effluent and also reported on a new option for recovering energy from the black liquor effluent (identified by their consultant), which would reduce both the black liquor discharge and the continuous discharge (and presumably obviate the need for building an anaerobic treatment facility). A letter dated 5/5/05 from St. Regis further updated EA regarding the options being considered. Looked as though they were seriously considering the option of recovering energy from the black liquor.</p> <p>[See also rows 2.3.5 - NSSC Pulping and Chemical Recovery, 2.3.11 - Decomissioning, 4.3 - The Habitats Regulations.]</p>
2 Waste Minimization	<p>· Analyze use of raw materials (through process mapping and raw material mass balance), assess opportunities for reductions, and provide an action plan for improvements</p>	<p>The following is taken from page 12 of section B 2.2.2 of the application (which as indicated above is incorporated into the permit). Material consumption is monitored and reported on a regular basis (normally, monthly) within the EMS and the accounting system. Consumption is reviewed in relation to production for the period and any abnormalities are investigated.</p> <p>Potential areas for waste minimization and reduction of material losses are reviewed within the scope of the EMS review of environmental aspects and environmental program.</p>	

Requirement	UK Technical Guidance	St. Regis Permit -- UK	St. Regis Improvement Program
2.2.3 Water Use	<ul style="list-style-type: none"> · UK benchmark for NSSC mills is 2.5-5 m3 of water use per air dried ton of pulp · Water use should be minimized · Constraints on reducing water use beyond certain levels should be identified · Water efficiency objectives should be established on a mass balance approach · Fresh water should be used only for dilution of chemicals, vacuum pump sealing, evaporative loss makeup, high pressure showers, wire section, and press section · Water released from installation should be from dirtiest part of the circuit · Measure and record fresh water consumption (preferably daily) · Monitor specific points of fresh water use and the discharge to the ETP · Review shower system to ensure water use is minimized · Consider improvements to water sealed vacuum pumps (cascading water seals, modern designs, substitute fans/blowers), filtering and reuse of water, and/or recycling to showers · Cooling waters should be separate from contaminated waters and re-used wherever practicable · Mechanical seals are preferred over water seals on rotating shafts · Control accidental discharges by designing broke and backwater tanks with sufficient capacity; using computer control of levels in broke, whitewater, and pulp towers; staff training with incentives for low discharges · Maximize recycling of unclarified and clarified whitewater through various specified techniques · Prevent factors that inhibit efficient use of water: use the lowest compatible water quality in an application, separate water circuits with a counter current pattern of water movement to minimize transfer of materials that could limit closure, use raw materials compatible with water closure, etc. 	<p>The overall water flow diagram is shown in Figure 2.2.3 (A). Descriptions of the water circuits are given in B 2.3.5. The papermaking water circuits are shown diagrammatically in Figure 2.2.3 (B).</p> <p>Transportation: The water hold-up/inventory within the primary and secondary loops is approximately 500 cubic meters. The save all on the secondary loop is a dissolved air flotation unit.</p> <p>Cleaning and washing: Fresh water is used continuously on the press section felt showers and wire sprays and intermittently for paper machine fabric and dryer fabric cleaning.</p> <p>Sealing and Cooling: Vacuum pump seals are one pass systems and are supplied with fresh water. A recirculation system is being installed on the vacuum pump sealing water system. Cooling water is all fresh water on a once-through basis because the temperature increase is too large for re-use without the installation of cooling towers.</p> <p>A water mass balance is shown diagrammatically in Figure 2.2.3 (C). Water consumption is monitored and reported on a daily basis within the EMS. As will be noted from the benchmark, the water consumption is significant, however, no appropriate benchmark description is given in the technical guidance or BREF for this type of NSSC Mill. The various water circuits have been closed up as much as practicable while still maintaining appropriate control of corrosion and color generation - for example, water is recycled from the dissolved air flotation system to the stock preparation and paper machine. Further process closure would lead to buildup of sulfur compounds and give rise to increased generation of sulfur type odors, which would increase the rate of corrosion within the plant buildings. Overall consumption of fresh water is approx. 31 metric tons per air dried ton of pulp. The water use benchmark presented in the technical guidance and BREF (2.5-5.0) is derived from NSSC pulp mills which are integrated with a paper production facility and a Kraft pulping facility. This allows for cross recovery of cooking liquor, which greatly reduces water consumption per air dried ton.</p>	<p>9.29 The Operator shall complete a detailed installation-wide water usage audit and provide a report to the EA identifying opportunities for improvement.</p> <p><u>Status:</u> St. Regis' letter of 5/16/03 provided a review of the mill's water use and stated that the water circuits had been closed as much as possible and could not be further closed without buildup of sulfur compounds. Therefore, the company had no plans for improvements. EA letter of 5/16/03 responded that the submitted report is not sufficiently detailed and asked for evidence of water supply quality requirements and benchmark water usage rates for individual unit operations. Also requested was a BAT justification where actual usage is significantly above benchmarks and an expected submission date for a response. St. Regis letter of 7/3/03 stated the company was awaiting EA comments subsequent to the discussion of 7/1/03. EA letter of 10/21/03 requested more information on water obtained from the Severn Tunnel de-watering operation, and details on the cost to the mill of using this water. St. Regis response, dated 4/29/04, indicated that the requested information was held by Net Work Rail, not St. Regis. The company did provide the requested cost information.</p>
MAIN ACTIVITIES AND STATEMENT	<ul style="list-style-type: none"> · Provide adequate process descriptions of activities and abatement, including: process flowsheets; diagrams of equipment having environmental relevance; details of chemical reactions; control system philosophy; annual production; mass and energy balance information; venting and emergency relief provisions; summary of operating and maintenance procedures; how protection is provided during startup, shutdown, and momentary stoppages; and, as appropriate, piping and instrumentation diagrams for systems containing polluting substances · Show how techniques represent BAT; justify proposals and any departures from indicative BAT 	<p>The permitted installation shall be operated using the techniques and in the manner described in the documentation specified in Table 2.3.1, or as otherwise agreed in writing by the EA. [Table 2.3.1 refers to the response on pages 15-39 of the company's application and to Response 3 to the Schedule 4 Notice.]</p> <p>The Sudbrook mill produces corrugated medium and small amounts of other products of a similar type. The mill operates on a rotating shift 24 hours per day, seven days per week, 52 weeks per year. The mill is scheduled for shutdown for routine maintenance for 12 hours every month, but this is often varied. If plant systems are problematic, maintenance shuts will be altered in frequency and duration to suit the time demands of the work required. Longer shuts are also scheduled from time to time for more major work or installation of new plant and equipment.</p> <p>The Sudbrook mill uses old corrugated cases and waste paper to provide approximately one third of its total fiber requirements. The total requirement for old corrugated cases and waste paper is approximately 48,000 metric tons annually. Additionally, the mill uses 245,000 metric tons annually of hardwood logs. Hardwood logs are sourced from Forestry Commission Felling Licence, Woodland Grant Study, Dedication Scheme or Forest Design Plan Authorisation schemes. Deliveries are audited to ensure they are supplied from forests managed in a sustainable manner, as required by the site's Environmental Policy.</p> <p>Fiber is recovered from waste paper by mechanical pulping. Virgin pulp is generated in the neutral sulfite semi chemical pulping process, using sodium sulfite as a cooking chemical. The process involves the integration of a number of separate activities which are outlined in the following sections.</p>	

Requirement	UK Technical Guidance	St. Regis Permit -- UK	St. Regis Improvement Program
1 Preparing Virgin Fiber		Debarking - N/A	<p>With regard to the demonstration of BAT and continual improvement, the following improvement items have been included within the permit. The items relate to the review of secondary containment systems within the installation boundary, surface water sampling and improved control, reduction and management of fugitive emissions.</p> <p>9.20 The Operator shall carry out a detailed review of site secondary containment facilities and provide a report detailing improvements to be made with appropriate timescales for implementation. <u>Status:</u> The required report was enclosed with a letter dated 2/14/03 from St. Regis to the EA. (not in my packet of information). In a follow-up letter, St. Regis provided an update of improvements made to containment facilities to that date. An EA letter of 3/31/03 asked St. Regis to confirm that improvement completion dates specified have been prioritized on an appropriate risk basis. Company responded on 5/13/03 that the dates were not prioritized based on risk, but the assessment would be carried out and a new schedule issued, as necessary. EA letter of 5/16/03 requested submission of an update report by 6/30/03. EA letter of 7/21/03 requested annual update reports by 1/31 each year until completion. St. Regis letter of 7/3/03 said an update would be forthcoming by 7/4/03. St. Regis letter of 7/3/03 transmitted revised completion dates and a review of actions completed thus far. A 10/15/03 letter from St. Regis provided the latest action completion dates [presumably revised again]. A 1/26/04 letter from St. Regis provided updates to actions through the end of 2003. On 10/26/05 St. Regis reported that the diesel storage tank had been removed and that no further actions remained outstanding for this item. [See also row 2.3.13 - Control of Fugitive Emissions to Surface Water, Sewer, and Groundwater.]</p> <p>9.25 The Operator shall prepare and submit a report into the chemical composition of surface water runoff from the waste paper storage and log storage area and potential discharges to groundwater following a period of monthly monitoring of not less than six months. <u>Status:</u> St. Regis letter of 5/16/03 indicated that the required report could not be submitted for several more weeks due to waiting on results of samples sent for analysis in March and April. EA letter of 5/16/03 (and a follow up letter of 7/21/03) asked for an expected submission date. St. Regis response of 7/3/03 indicated the report should be submitted by 7/11/03. In a letter dated 7/22/03, St. Regis submitted the required information on the chemical composition of surface water runoff. EA letter of 8/19/03 indicated that the EA considered this item complete. [See also rows 2.10.1.1 - Monitoring and Reporting of Emissions to Water and Sewer, 2.10.2 - Environmental Monitoring (Beyond the Installation)].</p> <p>9.26 All underground effluent and process water drainage systems shall be surveyed and a report on their condition shall be provided to the EA. <u>Status:</u> St. Regis' letter to EA of 4/30/03 provided survey results to date and noted that the survey had not yet been completed for various reasons (such as the ability to survey certain pipes depended on the plant being shut down). The letter referenced a meeting with EA and requested an extension until 12/31/04 to complete the survey. 5/16/03 letter from EA asked for update reports "by the dates proposed." [I did not see any proposed dates, perhaps they were in some correspondence that is not part of my package]. St. Regis letter of 7/20/04 updated the company's attempts to survey certain pipes (not all could be surveyed for various reasons). EA's response of 8/2/04 requested details of the risk assessments undertaken to justify not completing surveys of routes 3 and 5 (including reference to environmental hazard of fluids handled, alternative means of leak detection, and assessment of current integrity). In response, St. Regis indicated that routes 3 and 5 would become obsolete if current discussions conclude in favor of discharging all of the mill's effluent tidally. Also, current groundwater monitoring showed no signs of deterioration. [See also row 2.3.13 - Control of Fugitive Emissions to Surface Water, Sewer, and Groundwater.]</p>
1.2 Chipping	<ul style="list-style-type: none">- Abate noise per section 2.9- Control dust per 2.3.10- Control run-off per 2.3.11	<p>Page 16 through the first third of page 17 of the application contains a thorough description of the chipping system and a flow diagram [Figure 2.3.1 (B)]. The description covers the delivery of logs to the site, handling of logs, the chipping process, storage, handling of wastes, treatment of sawdust, etc.</p> <p>Dust Control: Dust emissions are minimized through:</p> <ul style="list-style-type: none">- Operational controls on dust emissions from the cyclonic sawdust handling system- Chipping and screening installed in enclosed building, and- Enclosure of conveyor systems through sheeting, supported where appropriate by a vacuum conveyor cleaning system. <p>Run-off Control: The chip pile is stored on hard standing, in an area drained to the effluent flume.</p> <p>Other issues: The following process controls operate on the chipping operation:</p> <ul style="list-style-type: none">- Water use is minimized by re-use of log wash-water, to the extent that it is technically viable, and- No suitable alternative disposal routes to landfill have been identified for the wood yard scrapings	
2 Preparing Recovered Fiber	[Does not appear to apply to St. Regis]	N/A	
3 Mechanical Pulping	[Does not apply to St. Regis]	N/A	
4 Chemical Pulping	<ul style="list-style-type: none">- Displace hot black liquor at the end of a batch with cooler liquor from the filtrate tank- The use of alternative pulping chemicals, such as sodium carbonate and sodium hydroxide, should be considered- where possible, use high consistency refining (can reduce BOD loads)	N/A [instead, section 2.3.5 below applies]	

Requirement	UK Technical Guidance	St. Regis Permit -- UK	St. Regis Improvement Program
5 NSSC Pulping and Chemical Recovery	<div>- Consider options for black liquor recovery (because of low calorific value, this may not be BAT)</div> <div>- Assess options for recycling (lingo-sulfonates are potentially saleable)</div> <div>- Most likely BAT option for black liquor wastes is anaerobic/aerobic biodegradation with energy recovery</div>	Pages 18-20 detail through narrative and diagrams the NSSC pulping process, including descriptions of inputs, process steps, products, and a brief discussion of the company's justification for not treating black liquor wastes.	<div>With regard to the demonstration of BAT and continual improvement, the following improvement items have been included within the permit. The items relate to the evaluation and implementation of COD reduction measures for the operator's site effluent discharge.</div> <div>9.22 The Operator shall upgrade the existing recovered paper pulping facilities to increase the proportion of the waste based product and hence reduce the COD concentration in the liquid effluent discharge. A report detailing the plant upgrade will be provided by 4/30/03 with a report detailing the installation and market development to be completed annually thereafter. <u>Status:</u> St. Regis' letter of 5/1/03 indicated that the company had been unable to effect the planned changes at the facility to reduce COD in the plant effluent. The planned conversion to making a new product utilizing a greater percentage of recovered fiber (70%) did not pan out (lack of market for the type of product the mill could produce). Furthermore, shutdown of a competitor mill in Norway provided support for the mill's existing product. The company's plans changed to investigating effluent treatment to achieve a 20% COD reduction (see 9.23 below). [Note: Letter indicates economic stress mill was under, considering that markets for their products were declining. Prelude to the mill closure?] EA letter of 5/16/03 asked for verification of the market condition, such as through available independent market surveys. St. Regis letter of 7/3/03 said that the market information was a summary of internal SRP market intelligence, and that published articles on market trends would be sent. St. Regis letter of 4/29/04 stated that the company was pursuing anaerobic treatment of its black liquor, which effectively closed off this item. EA letter of 11/25/05 stated that the required annual update had not been received. St. Regis responded on 12/5/05 stating that although at the time of permit issuance the mill was planning to change to primarily a waste based facility, that plan was abandoned as the mill was unable to sustain an acceptable level of return on the new product mix. The company understood that this item was therefore closed. [See also rows 2.2.1 - Raw Materials Selection, 2.3.11 - Abatement of Point Source Emissions to Surface Water, Sewer and Groundwater, 3.4 - COD.]</div> <div>9.23 The Operator shall investigate environmentally beneficial process changes and effluent treatment technologies for the treatment of liquid effluents and provide an annual report having regard to BAT to the EA commencing with 4/30/03. <u>Status:</u> Submittal from St. Regis to EA dated 5/1/03 provided results from the required investigation. Several technologies were mentioned, but only aerobic and anaerobic treatment were considered viable enough for more detailed discussion. Aerobic treatment was ruled out due to excessive operating costs (high energy use) and initial studies on anaerobic treatment were positive enough for St. Regis to propose running a pilot plant trial on site and report back to the EA by Dec. 2003. In a letter dated 5/16/03, EA asked for details of the proposed pilot plant trials and an assessment of environmental impacts prior to implementation. EA letter of 7/21/03 requested program details for the proposed pilot plant trials. St. Regis letter of 7/3/03 referred to an earlier EA/St. Regis meeting and that company was awaiting EA comments on the pilot trial plan. St. Regis letter of 4/29/04 stated that the company was pursuing anaerobic treatment of its black liquor, which effectively closed off this item. EA letter of 11/25/05 stated that the required annual update had not been received. St. Regis responded that it had indicated to the EA that it was pursuing anaerobic treatment, which effectively closed this item. Subsequently, anaerobic treatment was deemed unaffordable, and the mill has continued to investigate other options under item 9.31. [See also rows 2.2.1 - Raw Materials Selection, 2.3.11 - Abatement of Point Source Emissions to Surface Water, Sewer and Groundwater, 3.2/3.21 - The Emission Benchmarks/Standards and Obligations.]</div> <div>9.31 The Operator shall carry out further studies of the impact of their effluent discharges on the interest features of the Severn Estuary Special Protection Area, proposed Special Area of Conservation, RAMSAR and River Wye candidate in support of the submitted Habitats Assessment Report and its conclusions. The scope of the study and report shall be agreed with the EA before commencement. A copy of the final report shall be provided to the EA. <u>Status:</u> In a letter dated 11/24/04, St. Regis included a brief report of the impact of their effluent discharges on the Severn Estuary. A potential problem with the smaller continuous release (from the paper machine and recovered paper recycling plant) was identified. The company proposed addressing that problem before beginning work on the anaerobic treatment system (which would now begin in the fiscal year beginning in May 2006). St. Regis identified two options for addressing the continuous effluent's effect. St. Regis provided another update in a letter dated 3/8/05. The letter contained information on further consideration of the two options previously identified for ameliorating the effect of the continuous effluent and also reported on a new option for recovering energy from the black liquor effluent (identified by their consultant), which would reduce both the black liquor discharge and the continuous discharge (and presumably obviate the need for building an anaerobic treatment facility). A letter dated 5/5/05 from St. Regis further updated EA regarding the options being considered. Looked as though they were seriously considering the option of recovering energy from the black liquor. [See also rows 2.2.1 - Raw Materials Selection, 2.3.11 - Abatement of Point Source Emissions to Surface Water, Sewer and Groundwater, 4.3 - The Habitats Regulations.]</div>

Requirement	UK Technical Guidance	St. Regis Permit -- UK	St. Regis Improvement Program
2.3.6 Other Chemical Pulping Processes	N/A	N/A	
2.3.7 Bleaching	N/A	N/A	
2.3.8 Papermaking	<div>- Save-alls should be used for the recovery of particulate solids and clarified water; aim for fiber losses of 10-20 kg/ADt pulp</div> <div>- optimize retention aids to improve particulate wire retention</div> <div>- quantify production of broke levels of each grade and take steps to minimize</div> <div>- minimize losses from screening; return rejects to pulp mill wherever possible</div> <div>- optimize operation of pulp refiners to minimize generation of fines and dissolution of pulp/broke solubles</div> <div>- monitor machine drains for flow and solids content (to ascertain fiber losses – aiming at 10-20 kg/ADt)</div> <div>- Select materials, as possible, so as not to inhibit recycling</div>	<p>Papermaking is described on pages 20-23 of the application. These pages contain diagrams of waste paper pulp preparation (Figure 2.3.8(A)) and paper production (Figure 2.3.8(B)). Descriptions include: preparation of pulp from recycled fiber (waste paper), blending of recycled pulp with pulp produced from the NSSC process, and papermaking from blended pulp. Also described are water flows in these processes and company measures to conserve fresh water use. There is some overview of how the company deals with waste, waste water, water efficiency, and drainage issues - however these are discussed in greater detail in following "abatement" sections of the permit.</p> <p>This section also includes information on steam and power generation at the site. Four boilers (a fifth is a backup) and a sawdust incinerator are used for steam generation. Three boilers are Babcock and Wilcox water tube boilers installed in the late 1960s and rated at 23MW. A fourth boiler was installed in 1996 (Robey Lincoln shell fired type) and is rated at 15MW. The three main boilers are fitted with an economizer and steam at 700 psi is passed through a turbine/alternator to produce 4MW of electrical power. The smaller fourth boiler only produces low pressure steam. All four boilers are fired on natural gas (with heavy fuel oil as a standby fuel, except that the fifth (backup) boiler uses light fuel oil as standby). Table 2.3.8 (page 25 of the application) summarizes physical characteristics for all boilers and the sawdust incinerator. Following the table is a brief discussion of the company's NOx control efforts on the boilers and sawdust incinerator.</p>	
2.3.9 Coating	N/A		
	<div>- Describe measures and procedures in place and proposed to prevent or reduce point source emissions to air</div> <div>- Describe abatement equipment</div> <div>- Identify main chemical constituents of the emissions and assess the fate of these chemicals in the environment</div> <div>- Describe measures to assure required performance of abatement techniques</div> <div>- Describe measures to ensure adequate dispersion of minimized emissions to avoid adverse impacts</div> <div>- Describe any damage to health, soil, or terrestrial eco-systems</div> <div>- Demonstrate an appropriate assessment of vent/chimney heights</div> <div>- Assess possibility for abnormally high emissions from process upsets or equipment failure; set vent heights to avoid risk to health from upsets/failures</div> <div>- Releases from wet scrubbers should be hot enough to avoid visible plumes</div> <div>- Assess options for abating VOC emissions from mechanical pulping; VOC release should be quantified and a cost-benefit assessment made of abatement options</div> <div>- Fines released after pulping with the steam should be removed by a cyclone or similar device</div> <div>- Alkaline scrubbing can be used on digester vented gases for the NSSC pulping process, to capture sulfur dioxide where problems exist</div> <div>- Assess ammonia, formaldehyde, and other VOC emissions from drying section and re-pulping wet strength broke and adequacy of release heights; where heat recovery has yet to be installed, assess the impact of various heat recovery options on VOC reduction; where any VOCs are Class A, substitute with harmful alternatives as a first option</div> <div>- Employ low NOx burners on combustion equipment (such as gas fired dryers) other than boilers (for boilers use other IPPC guidance)</div>	<p>The application provides information on the individual sources of emissions to the air (Table 3.1(C))and the location of the principal pollutants released Figure 1.3(B). The principal releases to air are: sulfur compounds, VOC, NOx, SO2, H2S, and CO. BAT was assessed based on comparison to benchmark values and through environmental impact assessment to identify “priorities for control.”</p> <p><u>Key findings:</u></p> <p>Non-combustion sources</p> <p>St. Regis abates sulfur compounds from the NSSC process by passing gases through process water tanks. Gases from the low pressure feeder into the digester are fed to the chip wash sump (residuals exhaust through overflow pipe – Vent A2). Gases from the steaming vessel are vented to the cloudy water tank (and exhaust as fugitive emissions – Vent A8. Steam and gases from the digester are sent to the chip wash water tank and residuals vent at A3 (except that when the temp. of the water in the tank rises to 60°C, the gases are diverted directly to atmosphere – although this is rare). Steam and gases from the rotary drainer and chip hopper are discharged directly to the atmosphere via vent A10.</p> <p>VOC monitoring showed that emissions are better than the benchmark for mechanical pulping (there is no benchmark for NSSC pulping). Nonetheless, emission values analyzed under the E1 screening tests indicate the VOCs may be a priority for control. The company called for further monitoring and dispersion modeling as part of the Improvement Plan, prior to a final decision on controlling VOC emissions.</p> <p>Company monitored particulate emissions from the paper dryer exhaust vents only (principal source). Results (B3) are better than the benchmark for paper finishing. Yet the E1 screening tests indicate particulates from the paper machine may be a priority for control. The company recommended further monitoring and dispersion modeling as part of the Improvement Plan.</p> <p>There are no relevant benchmarks for NOx, SO2, CO, and H2S in the Technical Guidance or the BREF. E1 screening tests indicate that these pollutants may be priority for control. Company recommended further monitoring and dispersion modeling as part of the Improvement Plan.</p> <p>Combustion emissions</p> <p>On-site combustion process emissions abatement includes: the use of ceramic filters to remove fine particulates on the sawdust incinerator and the use of control and monitoring systems and a flue gas economizer on the main boiler stack.</p> <p>Levels of SO2 and particulates have not been measured for the boilers, but combustion of natural gas is considered BAT. Particulate levels in the sawdust incinerator are above benchmarks (B3) and are also indicated as a priority for control in the E1 screening (B4). Company proposed further monitoring and dispersion modeling as part of the Improvement Plan.</p>	<p>With regard to the demonstration of BAT and continual improvement, the following improvement items have been included within the permit. The items relate to air emission monitoring and assessment, compliance with directive EC/1999 etc, review of options for improved NOx releases, and details surrounding the proposed CHP installation.</p> <p>9.10 With reference to Tables 2.10.1 (B) and (C) of the application, the Operator shall provide details of the proposed monitoring Standard Reference Methods employed in both continuous monitoring and spot sampling for NOx, O2, VOCs, CO, CO2, and particulates (where applicable) from the combustion point source emissions. Also, with reference to Table 2.10.1 (D) of the application, provide details of the proposed monitoring Standard Reference Methods employed for spot sampling for NOx, SO2, VOCs, CO and H2S from the non-combustion point source emissions. Finally, with reference to Tables 2.10.1 (B), (C), and (D) of the application, details of the measurement uncertainties for all substances tested are to be included within the first response. The information is to be provided by 9/30/02 and any necessary implementation completed by 6/30/04.</p> <p><u>Status:</u> Letter from St. Regis dated 10/11/02 provided the requested monitoring information.</p> <p>[See also rows 2.10.1.2 - Monitoring and Reporting of Emissions to Air, 2.10.4/2.10.4.1 - Monitoring Standards (Standard Reference Methods)/Equipment Standards.]</p> <p>9.11 The Operator shall provide details to demonstrate if the monitoring devices for CO, CO2, and O2 comply with the performance characteristics required by BS ISO 12039:2001. The information shall be provided by 9/30/02 and BAT assessment for whether compliant equipment is to be installed by 6/30/04.</p> <p><u>Status:</u> Letter from St. Regis dated 9/24/02 indicated that the monitoring equipment was not compliant with the ISO standard (it was not possible to calibrate the instruments with audit gases on line, although it might be possible off line). EA letter dated 11/15/02 to St. Regis indicated the company response was not adequate and requested more detail on the reasons the instruments are not compliant. St. Regis’ follow-up letter of 1/3/03 provided additional detail of the boiler/incinerator monitors and proposed a path forward contingent upon incinerator re-start and a decision to proceed with constructing a CHP plant. EA letter of 3/31/03 requested that St. Regis provide a BAT assessment, by June 30, 2003, for the installation of BS ISO12093:2001 compliant monitoring equipment. A 5/13/03 letter from St. Regis indicated that the company would make the BAT assessment by 6/30/03. A 5/16/03 letter from EA asked for update reports “by the dates proposed.” [I guess they meant the 6/30/03 date]. St. Regis letter of 7/3/03 proposed that the BAT assessment be delayed until after the OMA audit. In another letter (7/21/03) the EA agreed that this item be covered in an upcoming OMA audit later in the year.</p> <p>[See also rows 2.10.1.2 - Monitoring and Reporting of Emissions to Air, 2.10.4/2.10.4.1 - Monitoring Standards (Standard Reference Methods)/Equipment Standards.]</p> <p>9.12 The Operator shall provide details to demonstrate the extent to which the sampling positions for combustion and noncombustion point source emissions comply with Improvement Program items 9.2 to 9.5 and 10.4 of BS 6069: Section 4.3:1992. The details shall include descriptions, drawings, and any relevant pitot traverse data for the sampling positions and an assessment of the effect any non-standard positions affect measurement uncertainties. Proposals for improving the</p>

Requirement	UK Technical Guidance	St. Regis Permit -- UK	St. Regis Improvement Program
2.3.10 Abatement of Point Sources of Emissions to Air		<p>CO emissions from the boilers are below benchmarks and natural gas combustion is considered BAT for CO. However, CO emissions from the sawdust incinerator are above benchmark values (sec. B3). E1 screening indicates that the CO emissions from the sawdust incinerator may be a priority for control. Company recommended further monitoring and dispersion modeling prior to deciding control plans.</p> <p>The NOx levels measured in the main boiler stack exceed the benchmark (B3) while the incinerator NOx levels are below benchmarks. E1 screening indicates that collectively NOx is a priority for control. Further monitoring and dispersion modeling will be carried out as part of the Improvement Plan.</p> <p>Dioxin levels from the sawdust incinerator is less than one-tenth the lowest benchmark in Section B3 and is not considered significant.</p>	<p>sampling positions in order to minimize measurement uncertainty shall be defined. The information shall be provided by 9/30/02 and the BAT assessment for improving facilities including program of works by 6/30/03.</p> <p><u>Status:</u> Letter from St. Regis dated 10/11/02 provided requested details on sampling locations. An EA response to St. Regis dated 3/31/03 requested an assessment of the effect of high particulate matter measurement uncertainty on emission limit compliance on release points A1 and A8. The letter also stated that stratification tests were needed for points A3, A4, A5, A6, and A7 to demonstrate that measurements are not adversely affected. A 5/13/03 response from St. Regis stated that the assessment and stratification tests would be reported by September 2003.</p> <p>A 5/16/03 letter from EA asked for update reports “by the dates proposed.” [I think that meant the September 2003 date from the St. Regis letter]. In another letter (7/21/03) the EA proposed that this item be covered in an upcoming OMA audit later in the year.</p> <p>[See also rows 2.10.1.2 - Monitoring and Reporting of Emissions to Air, 2.10.4/2.10.4.1 - Monitoring Standards (Standard Reference Methods)/Equipment Standards.]</p> <p>9.15 The Operator shall provide a plan for compliance with the Sulfur Oil Directive 1999/32/EEC.</p> <p><u>Status:</u> St. Regis letter of 3/18/02 stated that to enable compliance with the Sulfur in Oil Directive, the company would be modifying its boiler plant to be able to burn gas oil as a standby fuel. The company indicated the steps to installation and a completion date of October 2002.</p> <p>9.18 The Operator shall provide an annual update on the progress of the proposed CHP installation.</p> <p><u>Status:</u> Letter from St. Regis dated 9/27/02 stated that basic designs for a CHP installation had been completed and discussions of services for the plant were ongoing. However, the financial benefit of installing the CHP plant were being negated by water prices, gas prices, electricity prices, and the CCL agreement for Export Power. The letter further stated that St. Regis and ATCO Power Generation agreed to complete service discussions and await (starting construction?) until financial benefits are improved. EA letter of 8/8/03 indicated that St. Regis was late in submitting requested information (due 7/31/03). [I did not see any correspondence from EA setting up this deadline and detailing an information request.] St. Regis letters dated 8/22/03, 1/13/04, and 7/21/04 indicated that the CHP project was still on hold. In a letter dated 10/15/03, St. Regis submitted a paper by the Confederation of Paper Industries highlighting the economic restraints relating to CHP. EA letter of 10/21/03 requested updates every 6 months regarding the economics of CHP installation. On 7/25/05, St. Regis informed EA that the CHP project was still on hold for economic reasons, but that the mill was continuing its evaluation of an alternative that uses solid fuels from renewable resources. Another update with the same conclusion was submitted by St. Regis on 12/29/05.</p> <p>[See also row 2.7/2.7.1 - Energy/Basic Energy Requirements (1).]</p> <p>9.19 The Operator shall provide a report detailing a review of options considered to achieve reduced NOx releases from the boiler and incinerator and CO and particulate releases from the incinerator. The report shall have regard to BAT and where applicable the Operator shall provide an implementation plan detailing work schedules and associated timescales.</p> <p><u>Status:</u> St. Regis letter dated 11/29/02 responded to this item. Incinerator was off line at the time and St. Regis said a review of NOx, CO, and particulates would be completed after restart. Boiler NOx initiatives were explained. The EA sent a response on 1/9/03 indicating that the company’s letter was not detailed enough and enumerated the deficiencies and extended the deadline for response to 7/31/03. EA follow up letter of 8/8/03 stated that St. Regis was late in their response and requested that the information be sent by 8/22/03. St. Regis responded in a letter dated 9/1/03. The response stated that the incinerator was still off-line and a review of NOx, particulate, and CO2 emissions had not been carried out. However, low NOx burners were now available for the high-pressure boilers and a schedule for installation was provided. EA response of 9/9/03 reminded St. Regis that any restart of the incinerator should include improvements considered to represent BAT for CO and particulates. EA also asked that St. Regis reconsider the time table for installing low NOx burners, so that implementation is complete at the earliest date possible. Justification for installation beyond 2005 should be made and St. Regis was asked to submit a revised program for installation by 10/6/03. St. Regis letter of 10/15/03 referred to a recent phone conversation and proposed further discussion with EA before making a formal reply.</p> <p>[See also rows 3.7 - Nitrogen Oxides, 3.9 - Particulate and Suspended Solids.]</p>

Requirement	UK Technical Guidance	St. Regis Permit -- UK	St. Regis Improvement Program
11 Abatement of Point rce Emissions to Surface er and Sewer	<div>- Describe measures in place and proposed to prevent or reduce emissions to water and land</div> <div>- The description should include: the wastewater treatment system; justification for not cleaning effluent to a level allowing reuse; identification of main chemical constituents of treated effluent and assessment of their fate in the aquatic environment; identification of the toxicity of the effluent; identification of techniques to reduce potential impacts of residual toxicity; measures to increase assurance of required performance; and consideration of whether effluent flow is sufficient to invoke requirements of the Urban Waste Water Treatment Directive</div> <div>- Minimize water use and reuse or recycle wastewater</div> <div>- Uncontaminated roof and surface water should be discharged separately from waste water</div> <div>- Implement techniques to minimize contamination of process or surface water</div> <div>- Generally, effluent streams should be kept separate</div> <div>- Avoid bypassing of the treatment plant</div> <div>- Take into account the nature of the receiving water in regard to BOD; further BOD reductions that can be made at reasonable cost should be carried out</div> <div>- All emissions must be controlled to avoid a breach of water quality standards</div>	<p>Pages 28-34 of the application contain the following information. Point sources of emissions to surface water are listed (and shown in a diagram). Sources include: black liquor, boiler blow down, waste paper plant drains, paper mill effluent pit, pulp mill drains, chemical house drains, log washing pit, woodyard ditch, and main backwater tank overflow. Black liquor is the strongest mill effluent and is discharged to the effluent pond (COD averages 20,000 ppm). Boiler blow down is routed to the effluent pond. The effluent pond contents are held until 1.5 hours before high tide in the River Severn and then discharged. The pond discharge is terminated 3 hours after high tide. An alarm system is set up to ensure that pond valves are operated at the correct times. Site operates a semi-closed loop system for the recovery of water from the paper machine, via the paper mill excess backwater pit to the DAF. Effluent, 5400 cubic meters per day, is discharged to the effluent flume. Recycled water from the DAF unit is held in the main backwater tank and utilized for the NSSC pulping operation and in the paper mill. The remaining effluent sources are discharged to the River Severn estuary via the effluent channel and flume.</p> <p>Key control techniques summary: Paper mill excess water is recycled via the paper mill backwater system and dissolved air flotation system. The majority of water used in the recovered fiber pulping operation is re-used. Given the quality of water required for the pulping operation and the nature of the ultimate receiving water, no further treatment is justified for process re-use or ultimate discharge. Effluent discharged from the site is also subject to dilution in the ‘5 mile 4 chain’ drain, by water that is continuously pumped from the Severn Tunnel in order to prevent flooding.</p> <p>It is not possible to compare black liquor BOD and COD releases with benchmarks, as there are none in the BREF. In addition there are no data available for EQS or EAL on COD or BOD for discharges to the Severn Estuary or coastal waters. A 1998 EA study indicated some impact from the black liquor release near the outfall, but this was not quantified in relation to COD.</p> <p>Black liquor BAT analysis: The company conducted a BAT analysis for treatment of the black liquor. Several effluent treatment options were evaluated, along with chemical recovery and a waste plant upgrade. The analysis conclusion was that “based on current costs, annual costs and environmental impact, the costs of effluent treatment are considered to be excessive compared to potential environmental benefit. Similarly chemical recovery might be considered as BAT, but at a capital cost equivalent to the current asset value of the mill, is considered excessive. Based on this analysis, the company proposed an improvement plan (accepted by EA), as follows:</p> <p>1. The mill will upgrade the existing recovered paper pulping facilities to increase the proportion of waste-based product and hence reduce COD. The plant upgrade will take approximately 12 months, with the market development taking up to 5 years. 2. Prior to 2007 a study will be conducted to evaluate the impact of the COD reduction on the estuary. 3. In parallel, St. Regis will continue to investigate environmentally beneficial process changes and effluent treatment technologies. The EA will be provided with an annual report detailing the results of these investigations. 4. The source and potential impact of substances identified as a priority for control in the screening tests will be investigated further on a timescale to be agreed with the EA. Halogens are not significant, as the company does not use any chlorine-based bleaching processes. Heavy metal concentrations are below benchmarks, except cadmium. However, cadmium in incoming water is above benchmark, and the mill contribution is calculated to be about half of the benchmark. There are no benchmarks for copper, lead, and zinc, but the E1 screening (B4) indicates that these parameters may be a priority for control. Further investigation will be carried out in the Improvement Plan.</p>	<p>With regard to the demonstration of BAT and continual improvement, the following improvement items have been included within the permit. The items relate to the evaluation and implementation of COD reduction measures for the operator’s site effluent discharge, and the improved control system for the timed effluent discharges.</p> <p>9.5 The Operator shall provide details of the effluent pond discharge system and the measures employed ensuring reliability of timed effluent discharges. <u>Status:</u> St. Regis letter of 9/24/02 provided details of “Auto-Tide” software installation and integration into the company’s Foxboro control system. The software is designed to show a visible warning on the Foxboro screen when valves governing wastewater flow are to be opened or closed. The letter also contained detailed operating procedures for working with the new software. EA sent the submittal to the Public Register on 20/16/02. [See also row 3.2/3.2.1 - The Emission Benchmarks/Standards and Obligations.]</p> <p>9.22 The Operator shall upgrade the existing recovered paper pulping facilities to increase the proportion of waste based product and hence the COD concentration in the liquid effluent discharge. A report detailing the plant upgrade will be provided by 4/30/03 with a report detailing the installation and market development to be completed annually thereafter. <u>Status:</u> St. Regis’ letter of 5/1/03 indicated that the company had been unable to effect the planned changes at the facility to reduce COD in the plant effluent. The planned conversion to making a new product utilizing a greater percentage of recovered fiber (70%) did not pan out (lack of market for the type of product the mill could produce). Furthermore, shutdown of a competitor mill in Norway provided support for the mill’s existing product. The company’s plans changed to investigating effluent treatment to achieve a 20% COD reduction (see 9.23 below). [Note: Letter indicates economic stress mill was under, considering that markets for their products were declining. Prelude to the mill closure?] EA letter of 5/16/03 asked for verification of the market condition, such as through available independent market surveys. St. Regis letter of 7/3/03 said that the market information was a summary of internal SRP market intelligence, and that published articles on market trends would be sent. St. Regis letter of 4/29/04 stated that the company was pursuing anaerobic treatment of its black liquor, which effectively closed off this item. EA letter of 11/25/05 stated that the required annual update had not been received. St. Regis responded on 12/5/05 stating that although at the time of permit issuance the mill was planning to change to primarily a waste based facility, that plan was abandoned as the mill was unable to sustain an acceptable level of return on the new product mix. The company understood that this item was therefore closed. [See also rows 2.2.1 - Raw Materials Selection, 2.3.5 - NSSC Pulping and Chemical Recovery, 3.4 - COD.]</p> <p>9.23 The Operator shall investigate environmentally beneficial process changes and effluent treatment technologies for the treatment of liquid effluents and provide an annual report having regard to BAT to the EA commencing with 4/30/03. <u>Status:</u> Submittal from St. Regis to EA dated 5/1/03 provided results from the required investigation. Several technologies were mentioned, but only aerobic and anaerobic treatment were considered viable enough for more detailed discussion. Aerobic treatment was ruled out due to excessive operating costs (high energy use) and initial studies on anaerobic treatment were positive enough for St. Regis to propose running a pilot plant trial on site and report back to the EA by Dec. 2003. In a letter dated 5/16/03, EA asked for details of the proposed pilot plant trials and an assessment of environmental impacts prior to implementation. EA letter of 7/21/03 requested program details for the proposed pilot plant trials. St. Regis letter of 7/3/03 referred to an earlier EA/St. Regis meeting and that company was awaiting EA comments on the pilot trial plan. St. Regis letter of 4/29/04 stated that the company was pursuing anaerobic treatment of its black liquor, which effectively closed off this item. EA letter of 11/25/05 stated that the required annual update had not been received. St. Regis responded that it had indicated to the EA that it was pursuing anaerobic treatment, which effectively closed this item. Subsequently, anaerobic treatment was deemed unaffordable, and the mill has continued to investigate other options under item 9.31. [See also rows 2.2.1 - Raw Materials Selection, 2.3.5 - NSSC Pulping and Chemical Recovery, 3.2/3.2.1 - The Emissions Benchmarks/Standards and Obligations.]</p> <p>9.31 The Operator shall carry out further studies of the impact of their effluent discharges on the interest features of the Severn Estuary Special Protection Area, proposed Special Area of Conservation, RAMSAR and River Wye candidate in support of the submitted Habitats Assessment Report and its conclusions. The scope of the study and report shall be agreed with the EA before commencement. A copy of the final report shall be provided to the EA. <u>Status:</u> In a letter dated 11/24/04, St. Regis included a brief report of the impact of their effluent discharges on the Severn Estuary. A potential problem with the smaller continuous release (from the paper machine and recovered paper recycling plant) was identified. The company proposed addressing that problem before beginning work on the anaerobic treatment system (which would now begin in the fiscal year beginning in May 2006). St. Regis identified two options for addressing the continuous effluent’s effect. St. Regis provided another update in a letter dated 3/8/05. The letter contained information on further consideration of the two options previously identified for ameliorating the effect of the continuous effluent and also reported on a new option for recovering energy from the black liquor effluent (identified by their consultant), which would reduce both the black liquor discharge and the continuous discharge (and presumably obviate the need for building an anaerobic treatment facility). A letter dated 5/5/05 from St. Regis further updated EA regarding the options being considered. Looked as though they were seriously considering the option of recovering energy from the black liquor. [See also rows 2.2.1 - Raw Materials Selection, 2.3.5 - NSSC Pulping and Chemical Recovery, 4.3 - The Habitats Regulations.]</p>
11.2 Water Treatment for ermaking	[Likely not applicable, since no treatment system at St. Regis]	See Section 2.3.11 above	
11.3 Options for Specific Types	BAT: Pretreatment of the whole wastewater at NSSC mills without liquor burning	See Section 2.3.11 above	

Requirement	UK Technical Guidance	St. Regis Permit -- UK	St. Regis Improvement Program
2.3.12 Control of Fugitive Emissions to Air	<p>-Describe measures and procedures in place and proposed to prevent/reduce fugitive emissions (from at least the following sources: woodyards and chipping (dust), pulping, paper machine building (VOCs), finishing (dust), wastewater treatment (odor), fuel and ash handling, and paper stores (dust)</p> <p>- Estimate proportion of total emissions attributable to fugitive releases for each substance</p> <p>- Justify where any of the following measures are not employed:</p> <p>- DUST - No significant release of dust/litter by good housekeeping techniques, storing recovered paper indoors, covering skips and vessels, avoiding outdoor uncovered stockpiles and using other stockpile management techniques, wheel and road cleaning, using closed conveyors, minimizing drops</p> <p>- VOCs – subsurface filling of containers, use of vapor balance, enclosed system of transfer with exhaust to suitable abatement</p> <p>- Odor (see section 2.3.14)</p>	<p>Application contains a table listing facility fugitive air emission sources and associated abatement techniques, if any. Several sources are said to be insignificant, requiring no treatment (A4 - Mill Chamber, A14 - Paper Mill Building Vents, A15 - Main Backwater Storage Tank, A16 - High density Storage Tower in Waste Plant, A19 - Effluent Pond, and A20). Sources that are abated are: A1.1 Chip Pile - extended discharge chute; A1.2 Chip Conveyors - Top and side sheeting, with vacuum cleaner; A1.3 Sawdust Silo - Inspection check-sheet for leaks; A1.4 Log Conveyor - Inspection check-sheet for leaks; A6 Blend Chest - Foul air treatment system; A17 Hydrochloric Acid Storage Tank - water scrubber; and Sodium Sulfite Slurry Storage Tanks - at delivery only, powder passed through water curtain.</p> <p>In general, fugitive gaseous emissions from the process are routed through process water tanks to remove sulfur compounds and chip and stock piles are not enclosed because chips are of sufficient size to not become disturbed by the wind, except some dust is generated during high winds.</p> <p>The benchmark for emissions from material handling is "no visible dust", which is difficult to use for comparison purposes. St. Regis monitors dust deposition at two location on site and rates are typically well below 400 mg/m². Loose paper is controlled by using baled paper and fencing.</p> <p>Permit condition 6.1.9 requires that combustion chambers, casings, ductwork and associated equipment of all boilers and the sawdust incinerator be maintained so as to prevent leakage of combustion gases at all times.</p>	<p>With regard to the demonstration of BAT and continual improvement, the following improvement items have been included within the permit. The items relate to the provision of dust deposition monitoring results, the combination of certain aerial release for improved measurement and control and appropriate monitoring and calculative methods for ISR reporting.</p> <p>9.4 The Operator shall review the existing aerial vent configurations, in particular A2, A3, A4, and A5, and generate an action plan with proposed timescales for improvement. This plan to take account of the site's odor management plan and to be submitted to the EA. (by 9/30/02)</p> <p><u>Status:</u> May 29, 2002 letter from St. Regis contained the company's plan for controlling vents A1 through A14. The plans were a mixture of upgrading equipment and no additional action.</p> <p>[See also rows 2.3.14 - Odor, 2.10.1.2 - Monitoring and Reporting of Emissions to Air.]</p> <p>9.7 The Operator shall provide details of the on-site dust deposition monitoring system. The report to include trended results from the date of use of the device and provide a quarterly update to the EA. (by 9/30/02)</p> <p><u>Status:</u> Letter from St. Regis dated 10/11/02 included a report on details of the dust monitoring system and monitored results (showing a trend toward lower dust deposition over time). A letter dated 1/29/03 provided additional dust deposition data (in graphs) for the last half of 2002. St. Regis submitted quarterly update on 4/8/03. EA letter of 5/30/03 requested that St. Regis send future deposition reports with a shorter time-base to allow greater resolution of individual events. St. Regis response of 7/3/03 confirmed that a shorter time base would be used and provided additional information on the daily deposition limit and a change to the dust deposition measurement methods.</p> <p>[See also row 2.10.1.2 - Monitoring and Reporting of Emissions to Air.]</p> <p>9.17 The Operator shall establish a monitoring program or method of calculation for the air and water emissions identified in the application, such that information is available for annual reporting of emissions in accordance with the EA's Inventory of Sources and Releases. The program and methods of calculation shall be submitted to the EA. (by 12/31/02)</p> <p><u>Status:</u> St. Regis detailed their monitoring program/calculation procedures for determining plant releases in a letter dated 12/19/02.</p>

Requirement	UK Technical Guidance	St. Regis Permit -- UK	St. Regis Improvement Program
2.3.13 Control of Fugitive Emissions to Surface Water, Sewer, and Groundwater	<div>- Describe measures and procedures in place and proposed to prevent/reduce fugitive emissions to water and land</div> <div>- Procedures and measures should include those described below and the operator must justify where any of the measures are not employed</div> <div>- Subsurface Structures: establish and record the sources, direction, and destination of all installation drains and pipework</div> <div>- Identify subsurface pumps and storage vessels</div> <div>- Ensure minimum leakage from pipes and secondary containment or leak detection for pipework, storage vessels and sumps</div> <div>- Establish inspection and maintenance program for subsurface structures</div> <div>- Surfacing: Describe the design, construction and condition of all surfacing</div> <div>- Institute inspection and maintenance program for all impervious surfaces</div> <div>- Justify where operational areas have not been equipped with an impervious surface, spill containment kerbs, sealed construction joints, and connection to a sealed drainage system</div> <div>- Bunds; Bunds should be provided for all tanks containing liquids whose spillage could be harmful to the environment</div>	<div>Principal fugitive sources to water are: D2 Trailer Park runoff and D3 Woodyard runoff. Both sources are collected and pumped to the effluent flume. Additionally, the location and routing of all subsurface drains has been mapped. This information has been supplemented by a full drain survey of the site to establish the condition of the drainage system. All bulk storage for raw material and fuels are bunded to 110% of the capacity of the largest tank. The mill is undertaking a program of bunding all storage areas for containers which contain chemicals or oil.</div>	<div>With regard to the demonstration of BAT and continual improvement, the following improvement items have been included within the permit. The items relate to the review of secondary containment systems and the integrity of the site drainage systems within the installation boundary.</div> <div>9.20 The Operator shall carry out a detailed review of site secondary containment facilities and provide a report detailing improvements to be made with appropriate timescales for implementation. <u>Status:</u> The required report was enclosed with a letter dated 2/14/03 from St. Regis to the EA. (not in my packet of information). In a follow-up letter, St. Regis provided an update of improvements made to containment facilities to that date. An EA letter of 3/31/03 asked St. Regis to confirm that improvement completion dates specified have been prioritized on an appropriate risk basis. Company responded on 5/13/03 that the dates were not prioritized based on risk, but the assessment would be carried out and a new schedule issued, as necessary. EA letter of 5/16/03 requested submission of an update report by 6/30/03. EA letter of 7/21/03 requested annual update reports by 1/31 each year until completion. St. Regis letter of 7/3/03 said an update would be forthcoming by 7/4/03. St. Regis letter of 7/3/03 transmitted revised completion dates and a review of actions completed thus far. A 10/15/03 letter from St. Regis provided the latest action completion dates [presumably revised again]. A 1/26/04 letter from St. Regis provided updates to actions through the end of 2003. On 10/26/05 St. Regis reported that the diesel storage tank had been removed and that no further actions remained outstanding for this item. [See also row 2.3.1 - Preparing Virgin Fiber.]</div> <div>9.26 All underground effluent and process water drainage systems shall be surveyed and a report on their condition shall be provided to the EA. <u>Status:</u> St. Regis’ letter to EA of 4/30/03 provided survey results to date and noted that the survey had not yet been completed for various reasons (such as the ability to survey certain pipes depended on the plant being shut down). The letter referenced a meeting with EA and requested an extension until 12/31/04 to complete the survey. 5/16/03 letter from EA asked for update reports “by the dates proposed.” [I did not see any proposed dates, perhaps they were in some correspondence that is not part of my package]. St. Regis letter of 7/20/04 updated the company’s attempts to survey certain pipes (not all could be surveyed for various reasons). EA’s response of 8/2/04 requested details of the risk assessments undertaken to justify not completing surveys of routes 3 and 5 (including reference to environmental hazard of fluids handled, alternative means of leak detection, and assessment of current integrity). In response, St. Regis indicated that routes 3 and 5 would become obsolete if current discussions conclude in favor of discharging all of the mill’s effluent tidally. Also, current groundwater monitoring showed no signs of deterioration. [See also row 2.3.1 - Preparing Virgin Fiber.]</div>
14 Odor	<div>- Maintain an odor management plan which:</div> <div>- Categorizes the emissions as either “expected to be acknowledged in the permit” or “normally preventable”</div> <div>- For each category, demonstrate that there will be no odor problem</div> <div>- For each category, identify actions to be taken in the event of abnormal events or conditions that might lead to an odor problem</div>	<div>Septic odors arise from the Blend Chest, Cloudy Water Tank Vent, Effluent Pond, and Effluent Flume. The Blend Chest is the main source of septic odors (anaerobic breakdown of sulfite to generate H2S). Biocide is added intermittently to the pulp prior to being sent to the blend chest. If the process system is to be shut down at short notice, extra dosing of biocide is made. On planned shut-downs, the chest level is reduced to a minimum. A system has also been installed to remove and treat the odorous air and will be commissioned in 2001. VOC odors mainly arise from release of flash steam after chip processing in the digester. Odor more noticeable after periods when the NSSC digester has been shut down and is full of part digested chips. This type of shut down is minimized. Further investigations are to be undertaken to reduce VOC odors.</div> <div>The application contains a table (2.3.14) listing the sources of odor, chemical responsible, and abatement methods. Abatement for point sources of odors is as follows: A3 Digester Vent - minimize shutdowns that produce odor; A6 Blend Chest - biocide and foul air treatment system; A8 Cloudy Water Tank Vent - biocide added to backwater; A13 NSSC Washer Hood Vent - not a significant odor source; A14 Paper Mill Building Vents - not a significant source of odor (except upon startup after unplanned shut downs); A19 Effluent Pond - odor only when pond is emptied or washed; A20 Effluent Flume - Intermittent insignificant odor.</div> <div>Permit condition 6.1.2. limits H2S emissions from the following sources (mg/m3): A1 Paper Dryer Exhaust Vents -- 5 A2 Chip Washing Sump Vent -- 5 A3 Digester Vent -- 5 A4 Cloudy Water Tank Vent -- 5 A5 Chip Hopper Vent -- 5 A9 Blend Chest Vent -- 5</div> <div>Permit condition 6.1.5 requires that all emissions be free from offensive odour outside the boundary of the installation, as perceived by the local Environment Agency Authorised Officer.</div>	<div>With regard to the demonstration of BAT and continual improvement, the following improvement items have been included within the permit. The items relate to improvement measures required under the odour management plan.</div> <div>9.4 The Operator shall review the existing aerial vent configurations, in particular A2, A3, A4 and A5 and generate an action plan with proposed timescales for improvement. This plan shall take into account the sites odor management plan and be submitted to the EA. <u>Status:</u> May 29, 2002 letter from St. Regis contained the company’s plan for controlling vents A1 through A14. The plans were a mixture of upgrading equipment and no additional action. [See also rows 2.3.12 - Control of Fugitive Emissions to Surface Water, Sewer, and Groundwater, 2.10.1.2 - Monitoring and Reporting of Emissions to Air.]</div> <div>9.16 The Operator shall provide details of the specific improvement actions identified in their Odor Management Plan with particular reference to the odors associated with the blend chest and the effluent pond. <u>Status:</u> St. Regis provided the required information in a letter dated 1/10/03. The letter contained a review of existing data for suspected odor emission sources and an odor management action plan. An EA response dated 3/31/03 asked the following questions. Has the use of conservation vents or back venting been considered for displacement emissions from vessels such as the blend chest and cloudy water tank? How is biocide mixing currently achieved? Is there scope for improvements? St. Regis responded to these questions in a letter dated 5/13/03 – biocide is added to the stock prior to the feed pump to the Blend Chest; there is a recycle line on the chest; consideration of conservation vents or back venting to be added to the odor management plan. St. Regis responded to these questions in a letter dated 6/16/03. It reported results of an olfactory panel analysis, actions to date, and recommendations for further work (more monitoring and continued investigation of improvements). EA letter of 7/21/03 asked for an update by 1/31/04. EA letter of 10/21/03, however, asked for details of progress with assessment and abatement options for odorous releases from process vents. St. Regis letter of 2/13/04 provided an odor management plan update, including actions yet to be taken and dates for implementation. EA letter of 8/2/04 stated that characterization of potential point sources of odor was required and asked for a date when an update report would be available. In a letter dated 11/12/04 St. Regis indicated that they would characterize the odor sources with an FTIR, but that the instrument was not available to St. Regis until Jan. 2005.</div>
EMISSIONS TO GROUNDWATER	<div>- Identify if there may be a discharge of any List I or List II substances and, if any are identified, explain how the requirements of the Ground-water Regulations 1998 have been addressed</div> <div>- There should be no direct or indirect emissions to ground-water of List I or List II substances – confirm that this is the case</div> <div>- Where no direct or indirect emissions can be confirmed, provide certain information and surveillance arrangements (A and B on p. 55) (List I and II substances are described on p. 56)</div>	<div>2.4.1 Permitted installation shall be controlled as described on page 39 of the application and Responses 5 and 8 to the Schedule 4 Notice.</div> <div>2.4.2 Operator shall monitor the quality and level of the groundwater beneath the site from boreholes 2, 3, 4, 5, 6A, and 7, indicated in the Phase 2 Site Report dated September 2001 by Hyder Consulting. Monitoring shall be for the parameters and at the frequency specified in Table 2.4.2 as a minimum. The results of these analyses, together with an interpretation, shall be reported to the Agency annually.</div> <div>Table 2.4.2 Requires annual monitoring of the following parameters: pH, COD, Ammonia, Cadmium, Mercury, Chloride, Arsenic, Chromium, Lead, Selenium, Copper, Nickel, Zinc, Polyaromatic hydrocarbons, Diesel range organics, Sulfates, Pentachlorophenol, and Water level.</div> <div>The application states that there are no known direct or indirect emissions to groundwater.</div> <div>[Need to add info. From Responses 5 and 8]</div>	

Requirement	UK Technical Guidance	St. Regis Permit -- UK	St. Regis Improvement Program
5 WASTE HANDLING	<p>- Characterize and quantify each waste stream and describe the proposed measures for waste management storage and handling</p> <p>- Maintain a system to record the quantity, nature, origin, etc. of any waste which is disposed or recovered</p> <p>- Waste should be segregated; disposal routes should be as close to the point of production as possible</p> <p>-Maintain records of any waste sent offsite</p> <p>- Store wastes away from watercourses and sensitive boundaries</p> <p>- Storage areas/containers should be clearly marked</p> <p>- Maximum storage capacity and storage period should be stated and not exceeded</p> <p>- Provide appropriate storage facilities for special requirements, such as for flammable substances</p> <p>- Keep containers with lids, caps, valves secured and in place</p> <p>- Inspect storage containers regularly</p> <p>- Take all appropriate steps to prevent emissions from storage</p> <p>- Operator should provide adequate facilities for on-site monitoring, recording, storage, segregation, handling, loading, and transportation of wastes</p> <p>- Sludges should be stored on an impervious surface with containment bunds and surface water drainage controls (and preferable with cover to minimize leaching and disposal problems)</p>	<p>2.5.1 Operator shall handle and store waste as described in the application on pages 39 to 42.</p> <p>Table 2.5(A) in the application (pages 41 and 42) delineates waste "arisings", their characteristics, and disposal methods. The info is summarized below.</p> <p>1. P1 Recovered fiber plant, fiber cleaning systems - generate waste plant rejects (iron wire, staples, plastics, glass, etc.) which are compacted and sent to landfill.</p> <p>2. P2 Woodyard - generates woodyard scrapings and incinerator ash which is sent to landfill.</p> <p>3. P3 Paper Machine - generates sand separator rejects which is sent to landfill or land spreading.</p> <p>4. P4 Process system - general process waste which is sent to landfill.</p> <p>5. P5 Engineering - results in builders rubble which is sent to landfill.</p> <p>6. P6 Log Chipper - generates sawdust which normally is incinerated, although some is sent off site to be incinerated or used by waste transfer operator.</p> <p>7. P9 General Deliveries - generates old wooden pallets which are recycled.</p> <p>8. P10 Woodyard - generates wood waste which is recycledf.</p> <p>9. P11 Curved Effluent Screens - are used only occasionally, but generate primary effluent rejects which are sent to landfill.</p> <p>10. T1, 2, and 4 Process system - may generate redundant chemicals which are sent back to supplier or sent to treatment/landfill.</p> <p>11. T2 and E9 Laboratory and Engineering - redundant chemicals which are sent back to supplier or sent to treatment/landfill</p> <p>12. T3 and T4 Process system - generates old barrels/containers which are returned to supplier or sent to landfill.</p> <p>13 E1 and E8 Engineering - generates waste oil and old tranformer oil which is recycled.</p> <p>14. E2 and E5 Engineering - oily waste and absorbent materials which are disposed of by a contractor</p> <p>15. E3 Engineering - generates scrap metal which is recycled.</p> <p>16. E5 and E7 Engineering Workshop - which generates degreasing solvent and lathe coolants.</p> <p>17. E 11 Engineering - generates old cable drums which are disposed of by an appropriate contractor.</p> <p>Application states that within the EMS procedures are in place to ensure compliance with Duty of Care, Special Waste Regulations, and other applicable waste related regulations.</p> <p>2.5.2 Waste materials specified in Table 2.5.2 shall only be stored on the site in the location and manner specified in that table.</p> <p>Table 2.5.2 contains the following information:</p> <p>Woodyard scrapings - must be stored in the woodyard on impermeable hard standing which drains to site ditch and ultimately to effluent discharge flume.</p> <p>Waste oil - must be stored in designated areas in drums that are clearly marked and stored on contained concrete hard standing.</p> <p>Material for off-site recycling - must be stored in designated areas on impermeable hard standing which drains to site ditch and ultimately effluent discharge flume.</p> <p>Material for off-site disposal - must be stored in designated, segregated areas on concrete hard standing.</p> <p>Sawdust for off-site disposal - must be stored in designated, segregated areas on made ground.</p>	<p>9.30 The Operator shall conduct a comprehensive waste audit. This shall identify all of the wastes produced by the installation. For each waste stream identified, the quantity produced and the current management or disposal method used shall be stated. Information from the audit shall be used to identify opportunities for improved efficiency, changes in process, and waste reduction. A copy of the report and action plan submitted to the EA by 6/30/03. The waste audit shall be reviewed every 36 months and recommendations for further improvements shall be incorporated into a report and submitted to the EA within 6 months of each audit.</p> <p>Status: St. Regis transmitted the required waste audit report on 7/22/03. It summarized the waste sources and proposed actions to reduce waste. EA letter of 8/19/03 requested expected completion dates for all actions and a final report summarizing waste reductions achieved. In a later letter, 10/21/03, EA requested a final report by 8/31/04. St. Regis responded in a letter dated 10/18/04 which transmitted an update (not a final report) of progress on reducing waste to date.</p> <p>[See also 2.2.1 - Raw Materials Selection, 2.6 - Waste Recovery or Disposal.]</p>

Requirement	UK Technical Guidance	St. Regis Permit -- UK	St. Regis Improvement Program
2.6 WASTE RECOVERY AND DISPOSAL	<div>- Describe how each waste stream will be recovered or disposed of; explain why recovery is technically and economically impossible for any stream disposed; describe measures to avoid or reduce impact on the environment</div> <div>- Demonstrate that the chosen routes for recovery or disposal represent the best environmental option considering the following:</div> <div>- Explore all avenues for bark/sawdust recovery such as composting, ground cover, and animal bedding</div> <div>- Recycling within the process or within the industry, to a wastepaper machine</div> <div>- Landspreading, provided it is of agricultural/ecological benefit, operator has identified pollutants likely to be present, and has identified the ultimate fate of these substances in the soil</div> <div>- Where recovering energy from bark/sludge, dewater sludge to greatest extent practicable, assess impact on boiler’s energy balance, reuse residual ash from boiler, and the boiler must meet the standards in the appropriate combustion guidance</div> <div>- Where energy recovery is not appropriate, assess wastes generated by nearby mills to ascertain feasibility of a central incinerator</div>	<div>2.6.1 Operator shall recover and dispose of waste as described on pages 43-46 of the application.</div> <div>Pages 43-46 of the application contains much of the same information as the previous section, except that the tables (2.6(A) and (B)) are an expanded form of Table 2.5(A). Tables 2.6 include some waste sources not covered in Table 2.5 [presumably they are smaller sources], which are described below.</div> <div>1. P7 and P8 Log Chipper - generates sawdust which normally is incinerated, although some is sent off-site to be incinerated or used at waste treatment depot.</div> <div>2. T5 Used oil spill materials - generates absorbent material containing oil; abatement listed as "not applicable:"</div> <div>3. E10 Sawdust incinerator - generates ash from combustion which is controlled by combustion control.</div> <div>This section also contains justifications for disposal methods chosen for the various waste sources.</div>	<div>9.30 The Operator shall conduct a comprehensive waste audit. This shall identify all of the wastes produced by the installation. For each waste stream identified, the quantity produced and the current management or disposal method used shall be stated. Information from the audit shall be used to identify opportunities for improved efficiency, changes in process, and waste reduction. A copy of the report and action plan submitted to the EA by 6/30/03. The waste audit shall be reviewed every 36 months and recommendations for further improvements shall be incorporated into a report and submitted to the EA within 6 months of each audit.</div> <div>Status: St. Regis transmitted the required waste audit report on 7/22/03. It summarized the waste sources and proposed actions to reduce waste. EA letter of 8/19/03 requested expected completion dates for all actions and a final report summarizing waste reductions achieved. In a later letter, 10/21/03, EA requested a final report by 8/31/04. St. Regis responded in a letter dated 10/18/04 which transmitted an update (not a final report) of progress on reducing waste to date.</div> <div>[See also 2.2.1 - Raw Materials Selection, 2.5 - Waste Handling.]</div>
ENERGY 1 Basic Energy uirements (1)	<div>- Provide a breakdown of the energy consumption and generation by source, and the associated environmental releases</div> <div>- Supplement this information with energy flow diagrams showing how energy is used in the process (annually)</div> <div>- Provide information on emissions of CO2 using factors from the Energy Efficiency Guidance Note</div>	<div>2.7.1 Operator shall use energy as described on pages 47-50 of the application and Response 1 to the Schedule 4 Notice.</div> <div>The application under 2.7.1 states the the site energy objective is to minimize energy use by: using energy efficient products, operating equipment in an efficient manner, and continually reviewing the operation and identifying areas or practices that would result in improved energy efficiency. The application, in this section, also describes the various sources of energy at the site and methods employed to keep energy use as efficient as possible. Table 2.7.1(A) gives a breakdown of energy supply by type of energy source. Table 2.7.1(B) gives information on the primary uses of energy at the site. Table 2.7.1(C) lists CO2 emissions at the site by type of energy supply source (gas, oil, electricity). Table 2.7.1(D) also shows CO2 emissions by supply source but compared to the kWh provided by each source.</div>	<div>9.18 The Operator shall provide an annual update on the progress of the proposed CHP installation. (by 1/31/03 and bi-annually thereafter).</div> <div>Status: Letter from St. Regis dated 9/27/02 stated that basic designs for a CHP installation had been completed and discussions of services for the plant were ongoing. However, the financial benefit of installing the CHP plant were being negated by water prices, gas prices, electricity prices, and the CCL agreement for Export Power. The letter further stated that St. Regis and ATCO Power Generation agreed to complete service discussions and await (starting construction?) until financial benefits are improved. EA letter of 8/8/03 indicated that St. Regis was late in submitting requested information (due 7/31/03). [I did not see any correspondence from EA setting up this deadline and detailing an information request.] St. Regis letters dated 8/22/03, 1/13/04, and 7/21/04 indicated that the CHP project was still on hold. In a letter dated 10/15/03, St. Regis submitted a paper by the Confederation of Paper Industries highlighting the economic restraints relating to CHP. EA letter of 10/21/03 requested updates every 6 months regarding the economics of CHP installation. On 7/25/05, St. Regis informed EA that the CHP project was still on hold for economic reasons, but that the mill was continuing its evaluation of an alternative that uses solid fuels from renewable resources. Another update with the same conclusion was submitted by St. Regis on 12/29/05.</div> <div>[See also row 2.3.10 - Abatement of Point Source Emissions to Air.]</div>
2 Basic Energy uirements (2)	<div>- Describe proposed measures for energy efficiency improvement</div> <div>- Confirm and give evidence of optimization of operating procedures and process scheduling and of maintenance and house-keeping systems (according to checklists in App. 3 of Energy Efficiency Guidance Note)</div> <div>- Identify and show that basic, low cost, physical energy efficiency techniques have been undertaken</div> <div>- Confirm that the facility will deliver the requirements listed in the Building Services Section of the Energy Efficiency Guidance Note</div> <div>- Provide an energy efficiency plan which: identifies all techniques relevant to the installation including those listed in section 2.7.3, identifies those which have been employed, prioritizes applicable techniques (using the method from Guidance Note), identifies any techniques that could lead to adverse environmental impacts (thus requiring further assessment)</div>	<div>2.7.2 Operator shall produce a report annually on the energy consumption of the installation. The report shall provide a breakdown of energy consumption and include associated environmental releases. The report shall be used to identify opportunities for improvements in efficiency and changes in process.</div> <div>The application states that the site EMS includes procedures to address the requirements for: operating and maintenance procedures, physical controls, and building services.</div>	
3 Sector Specific Energy uirements	<div>- Describe the proposed measures for improvement of energy efficiency</div> <div>- Define and calculate the specific energy consumption of the activity and compare against relevant benchmarks for the sector (submit annually)</div> <div>- List of energy efficiency techniques (p. 62 of technical guidance)</div> <div>- Demonstrate that the option for combined heat and power generation has been considered; justify any decision not to install a CHP unit</div>	<div>2.7.3 Operator shall have an energy efficiency plan which shall be updated annually.</div> <div>The application indicates that the site is subject to a Climate Change Levy Agreement.</div>	
ACCIDENTS AND THEIR NSEQUENCES	<div>- Describe the documented system proposed to be used to identify, assess and minimize the environmental risks and hazards of accidents and their consequences</div>		
1 Identifying the Hazards	<div>- Identify hazards posed by the installation, including: substance transfer, vessel overfilling, containment failure, failure to contain firewaters, incorrectly connecting drains or other systems, incompatible substances coming into contact, unwanted reactions, steam main issues, vandalism, emission of effluent without adequate characterization</div>	<div>Operator shall prevent and limit the consequences of accidents as described in the application on pages 51-54 and Response 1 to the Schedule 4 Notice.</div> <div>The application includes a Table 2.8.1 (pages 52-54) which identifies the potential hazards which could have an environmental impact. The identified potential hazard categories include: fuel oil, lubrication and hydraulic oil, bulk chemicals, chemicals in semi-bulk and smaller containers, major process spillage, wood and wood waste storage areas, and paper.</div>	
2 Assessing the Risks	<div>- Address the following six basic questions:</div> <div>- Probability of occurrence?</div> <div>- What gets out and how much?</div> <div>- Where does it go?</div> <div>- Consequences?</div> <div>- Overall risks?</div> <div>- What can prevent/reduce the risk?</div> <div>- The type and depth of an assessment depends on: the scale and nature of the accident, the risks to population and the environment, and nature of the installation and complexity</div>	<div>The application indicates the EMS includes procedures for the assessment of environmental risks. The results are recorded and are audited both internally and independently by the ISO 14001 certification body. Risk assessments take into consideration: proximity to water courses, activities of other areas of the site, and emergency conditions. The issues addressed include: likelihood of occurrence, likelihood of detection, severity, and control measures. Each issue is assessed as low, medium, or high and once all issues have been considered an overall assessment of the particular risk is calculated and recorded. Overall assessments fall into three categories: low risk - risk is acceptably low; medium risk - the risk is present but controlled within current procedures; and high risk - the risk is not acceptable and action is required to reduce it to acceptable levels.</div>	

Requirement	UK Technical Guidance	St. Regis Permit -- UK	St. Regis Improvement Program
2.8.3 Techniques to Reduce the Risks	<p>Describe techniques to prevent accidents and minimize their consequences, including:</p> <ul style="list-style-type: none">- List substances likely to have environmental consequences- Procedures for ensuring compatibility of raw materials and waste with other materials they contact- Preventative techniques- Appropriate containment- Adequate storage- Process design alarms- Etc. (p. 65)- Sector specific techniques- (a list of specific actions – p. 66)	<p>Table 2.8.1 of the application also includes techniques used to reduce the risks of hazards. The table is not reproduced here because it is too long.</p> <p>In addition to the risk reduction techniques in the table, the following general measures are taken: 1) new materials are not brought onto the site until they have been assessed for health, safety, and environmental risks within the EMS; 2) all projects involving process changes or modifications are subject to hazard and risk assessment studies at the planning stages; 3) computer control of the pulp and paper mills is designed to ensure that process parameters are controlled within acceptable limits and spillage from upsets are minimized; 4) personnel are trained in incident response techniques; and 5) incident and non-conformity reporting procedures, within the EMS, encourage the reporting of near-misses, which are analyzed and pro-active measures taken to reduce the likelihood of an incident occurring.</p>	<p>9.27 The Operator shall review bulk chemical delivery and storage arrangements with a view to reducing the environmental risk associated with spillage during delivery operations and storage and submit a report to the EA identifying improvements and a timetable for implementation. The report shall detail the proposed chemical kitchen installation. (by 4/30/03).</p> <p><u>Status:</u> Response contained in correspondence to the EA dated 5/9/03. Response enumerated the mill's EMS procedures to minimize environmental risks from storage/delivery. Two improvement items were discussed, as well as the recently commissioned 'chemical kitchen' (looked like a storage area for all chemicals). 5/16/03 letter from EA asked for update reports "by the dates proposed." [I did not see any proposed dates, perhaps they were in some correspondence that is not part of my package.] St. Regis letter of 4/29/04 updated this item – including information on installation of a new caustic storage tank and costs for alternative method for sodium sulfite storage. Referring to earlier discussions, an EA letter of 8/2/04 requested an update of sulfite handling improvements under consideration. In an 11//12/04 letter, St. Regis stated that trials of a new sulfite handling system were successful and the company would be submitting an application requesting approval to purchase equipment for the new system.</p>
NOISE AND VIBRATION	<ul style="list-style-type: none">- Describe the main sources of noise and vibration; the nearest noise sensitive locations and relevant environmental surveys taken; and proposed techniques and measures for noise control- Provide for each source: whether continuous or intermittent, hours of operation, type (aural or vibrational, impulsive or tonal, contribution to overall site noise- For nearest noise-sensitive areas, provide an accurate map showing grid reference, nature of receiving site, distance and direction from site boundary- Identify any conditions imposed to reduce noise, such as operating times or technologies- Characterize the noise environment, including: background noise level, specific noise level, ambient noise level, and vibration data- In proposing techniques to control noise, consideration should be given to those in the BREF (section 6.3.19) and the following:<ul style="list-style-type: none">- Debarking and chipping – simple shielding, indoor operation, underground operation- Refiners – indoor siting- Papermaking – broad band absorptive silencing for fans, reactive silencing (e.g., pipe resonators) for vacuum pumps, or a combination of techniques- Paper machine – proper maintenance and acoustic hooding- Boiler plant – Silencers on safety relief valves and acoustic cladding, acoustic air intakes, and stack attenuators for gas turbine noise- Internal transport – proper road layout and transport schedule restriction- General – shielding by earth banks and plantations- Provide likely impact of proposed measures on background levels and levels in noise sensitive locations; indicate likely cost and implementation schedule	<p>2.9.1 The Operator shall control noise and vibration as described on pages 54 to 56 of the application.</p> <p>The application notes that noise is not considered a problem at the site. Frequent sources of noise are listed in Table 2.9.1, along with type descriptions and abatement or control methods. Table 2.9.2 lists infrequent noise sources and Table 2.9.3 contains information on the two nearest noise-sensitive areas.</p> <p>The decision document indicates that the operator provided less than sufficient information for the EA to make an objective assessment of the noise impact from the facility. Thus, no firm conditions for noise/vibration have been set and will await the outcome from several improvement program items.</p> <p>The Operator shall supply, where appropriate, a report to the EA detailing the findings and proposed actions.</p>	<p>Item 9.1 has been included in assist the Agency by providing a detailed site plan outlining significant point source noise emissions.</p> <p>9.1 The Operator shall produce a large scale detailed plan of the installation to show the significant point source noise emissions which impact upon the environment beyond the installation boundary. The sources to be identified by description, make and model of each item of plant where possible. The Operator shall provide a copy of the report to the EA.</p> <p><u>Status:</u> St. Regis sent a letter to EA on May 8, 2002 transmitting a drawing showing significant sources of noise. (Note: Drawing was not in the package submitted by the UK contact.)</p> <p>9.2 The Operator shall measure the background noise levels at the site boundary in closest proximity to suitable noise-sensitive receptors in Marine Terrace, Sea View and Post Office Row, with the process not operating. Results to be expressed as LA90, dB (1 hour daytime and evening, 5 minutes nighttime). The Operator to provide a copy of the report to the EA.</p> <p><u>Status:</u> Along with the letter to the EA of May 8, 2002, St. Regis transmitted an environmental noise assessment. The EA sent the drawing and noise assessments to the Public Register on October 17, 2002. (Note: Noise assessments not in the package submitted by UK contact.)</p> <p>9.3 The Operator shall measure the ambient and specific noise levels at the site boundary in closest proximity to suitable noise-sensitive receptors in Marine Terrace, Sea View and Post Office Row with the process operating. Results to be expressed as LA90, dB (1 hour daytime and evening, 5 minutes nighttime). The Operator to provide a copy of the report to the EA.</p> <p><u>Status:</u> Along with the letter to the EA of May 8, 2002, St. Regis transmitted an environmental noise assessment. The EA sent the drawing and noise assessments to the Public Register on October 17, 2002. (Note: Noise assessments not in the package submitted by UK contact.)</p> <p>9.13 On consideration of the outcomes of improvement items 9.2 and 9.3, where a significant difference between background and process noise levels at the indicated receptors exists, then the Operator shall:</p> <ul style="list-style-type: none">• identify the significant sources at the installation which impact on these receptors;• complete and assessment of the contributions of each source to the overall noise environment - this shall be defined by monitoring the source at a given distance and undertaking measurements for at least the following parameters: LAeq (5 mins), LA90 (5 mins), and MAX-PEAK – if the source is identified as tonal, the LAeq measurement should be given as the total level, and also as a 1/3 octave band frequency spectra – where the source is identified to be free-field, it may be necessary to undertake monitoring at more than one plane from the source, dependent on the source's directivity;• calculate/identify the contribution of the source to the levels measured at the nearest receptor, as identified in 9.2. and 9.3;• identify the available options for screening, attenuating or otherwise reducing the contribution of these noise sources to the overall acoustic environment in proximity to the installation. <p><u>Status:</u> Letter from St. Regis dated 12/5/02 contained the minutes for a meeting between EA and St. Regis on 5/31/02 regarding noise sources; a contractor report for a environmental noise review (not in my packet of information); and an action plan for noise abatement. EA letter of 8/19/03 requested that St. Regis provide a list of actions and an implementation schedule to address the results of the contractor noise assessment. St. Regis letter of 10/15/03 listed actions to be undertaken based on a meeting with the company's consultant – completion dates for these actions were to be submitted later. EA letter of 10/21/03 stated that at the next meeting they would discuss and agree to a way forward. EA letter of 8/2/04 asked for an update on progress with the actions identified in the Environmental Noise Assessment report. St. Regis letter of 11/12/04 provided an update.</p>
MONITORING	<p>Describe proposed measures for monitoring emissions including any environmental monitoring, and the frequency, measurement methodology and evaluation procedure proposed</p>	<p>[Note: The Technical Guidance and the permit application cover monitoring and reporting in one section, namely 2.10, while the St. Regis permit covers monitoring in Section 2.10 and reporting in Section 4. To continue with the same outline as in the Technical Guidance, the reporting requirements from the permit (Section 4) are recorded in this section.]</p>	

Requirement	UK Technical Guidance	St. Regis Permit -- UK	St. Regis Improvement Program
2.10.1 Emissions Monitoring	Following monitoring parameters are considered appropriate. Confirm or justify alternate arrangements. Reduced monitoring frequency may be considered for substances not emitted in significant quantity. Where effective surrogates are available, they may be used to minimize cost	<u>Monitoring:</u> 2.10.1 The Operator shall carry out, evaluate, and assess monitoring as described in the application on pages 56 to 67. 2.10.2 Where requested in writing by the EA, the operator shall provide at least 14 days advance notice of undertaking monitoring/spot sampling. 2.10.3 Operator shall provide: a) safe and permanent means of access to enable sampling/monitoring to be carried out in relation to the emission points in Schedule 2 (Table S2) (see sections 2.10.1.1 and 2.10.1.2) 2.10.4 Sampling and analysis to meet the periodic measurement requirements of emissions to air, as set out in Table 6.1.2 (see section 6 below) and reference measurements in order to calibrate continuous emission monitoring equipment, shall be carried out as given by CEM standards. Until such time as the appropriate CEN standards are available, the following national standards shall be used: a) carbon monoxide - ISO/CD 12039; b) particulate - BS3405, BS6069 (section 4.3), BS ISO 10155 (for continuous monitoring equipment); c) volatile organic compounds - BS EN 12619.1999, BS EN 13526.2001; d) nitrogen oxides - BS ISO 10849.2001; e) sulfur dioxide - BS6069 (section 4.1), BS ISO 11632, BS6069 (section 4.4 for continuous monitoring equipment). 2.10.5 Where new monitoring equipment is to be used or installed, the operator shall first consider whether the equipment which has been certified under MCERTS certification scheme is available and suitable. Where this is the case, the operator shall select and use certified equipment unless the EA agrees in writing that uncertified equipment of an equivalent standard of performance may be used. <u>Reporting:</u> 4.1.1 All reports and notifications required by the permit, or by Regulation 16 of the PPC Regulations, shall be sent to the Environment Agency at the address notified in writing to the Operator by the Environment Agency. 4.1.2 The Operator shall report the parameters listed in Table S2 to Schedule 2 as follows: (a) emission points specified; (b) for reporting periods specified in Table S2 to Schedule 2 and using forms specified in Table S3 to Schedule 3; (c) provide information from results and assessments required by forms specified; (d) send report to EA within 28 days. 4.1.3 Operator shall submit a report on potential environmental improvements to the Permitted Installation and assess the costs and benefits of alternative techniques that may provide environmental improvement. For techniques not implemented, the Operator should provide justification using BAT criteria. Operator shall submit an updated report every 36 months. 4.1.5 Fugitive emissions shall be reviewed on an annual basis and summary report sent to EA detailing releases and measures taken to reduce them.	

Requirement	UK Technical Guidance	St. Regis Permit -- UK	St. Regis Improvement Program
2.10.1.1 Monitoring and Reporting of Emissions to Water and Sewer	Monitoring of process effluents released to controlled waters should include, at least: - flow rate (continuous and integrated daily flow rate) - pH (continuous) - Temperature (continuous) - COD/BOD (flow weighted sample or composites, weekly analysis, reported as flow weighted monthly averages - TOC (continuous) - Turbidity (continuous) - Dissolved O2 (continuous) - Other parameters specifically limited in the permit should be monitored - BOD/ADt and COD/ADt should be established as annual averages - At least annually, carry out broad analysis to establish whether all substances have been taken into account; any substances of concern should be monitored	<u>Monitoring:</u> Final mill effluent is discharged through one emission point and is sampled as described in Section 2.3.11. Parameters are monitored as shown in Table 2.10.1(A) Application Table 2.10.1(A) Mill Effluent to Severn Estuary -- Final mill effluent is discharged through one emission point (D1) and sampled at the effluent flume indicated on site plan. Flowrate: Daily integrator reading from continuous meter flume COD: Composite 24 hr flow proportional sample with weekly analysis BOD: Quarterly spot sample to independent analyst Suspended Solids Loading: Composite 24 hr. Flow proportional sample pH: Composite 24hr Flow proportional sample Sulphite, Cadmium, Cu, Pb, Zn, Mercury Pentachlorophenol, Diedrin, Endrin, Hexachlorohexane: Quarterly spot sample sent to independent lab <u>Reporting:</u> Flowrate: Mean and Maximum reported quarterly. COD: Weekly analysis reported as flow weighted averages quarterly BOD: Reported quarterly Suspended Solids Loading: Mean and Maximum reported quarterly pH: Mean, Min, Max reported quarterly Sulphite, Cd, Cu, Pb, Zn, Mercury Pentachlorophenol, Diedrin, Endrin, Hexachlorohexane: Reported quarterly	9.25 The Operator shall prepare and submit a report into the chemical composition of surface water runoff from the waste paper storage and log storage area and potential discharges to groundwater following a period of monthly monitoring of not less than six months. (by 4/30/03) Status: St. Regis letter of 5/16/03 indicated that the required report could not be submitted for several more weeks due to waiting on results of samples sent for analysis in March and April. EA letter of 5/16/03 (and a follow up letter of 7/21/03) asked for an expected submission date. St. Regis response of 7/3/03 indicated the report should be submitted by 7/11/03. In a letter dated 7/22/03, St. Regis submitted the required information on the chemical composition of surface water runoff. EA letter of 8/19/03 indicated that the EA considered this item complete. [See also rows 2.3.1 - Preparing Virgin Fiber, 2.10.2 - Environmental Monitoring (Beyond the Installation).]
2.10.1.2 Monitoring and Reporting of Emissions to Air	- Identify all substances released and in what quantity, to determine whether regular monitoring will be needed - Monitoring most likely will be needed for: - formaldehyde or ammonia (quarterly) - chlorinated organics (quarterly) - VOCs (quarterly) - SO2 from NSSC pulping (continuous) - Combustion emissions (see separate guidance) - Continuous monitoring is expected where the releases are significant or needed to maintain good control - Measure gas flow to relate concentrations to mass releases - To relate measurements to reference conditions, measure: - temperature and pressure - oxygen (for combustion emissions - water vapor content (for combustion emissions or other wet gas stream) - As appropriate, make visual and olfactory assessment of releases to assure that final releases are colorless, free from persistent trailing mist or fume, and free from droplets	<u>Monitoring:</u> Main Boilers: Two permanent boiler stacks are on site. There is also one boiler stack associated with a temporary boiler. The emission parameters measured for these stacks are contained in Table 2.10.1 (B) of the application and are summarized below. Main boilerhouse stacks (A11): Gas usage, HFO usage, temperature to stack, oxygen, NOx, carbon dioxide, carbon monoxide, and obscuration are measured continuously. Exhaust flow rate, pressure to stack, oxygen, water content, NOx, and carbon monoxide are measured twice per year (the oxygen, NOx, and carbon monoxide twice yearly measurements are used as cross checks for the continuous monitoring data). Sulfur dioxide and particulates are not monitored, since natural gas is fired in these boilers. Temporary boiler (A27): Carbon monoxide and NOx are manually tested twice per week when the temporary boiler is in use. Exhaust flow rate, articulates, and sulfur dioxide are not monitored. Gas usage is measured by a daily integrator reading. Sawdust Incinerator (A12): Monitoring of the Sawdust Incinerator is described in Table 2.10.1 (C) of the application and is summarized as follows: Temperature to stack, oxygen, carbon monoxide, and particulates are measured continuously; Exhaust flow rate, pressure, water content, NOx, carbon monoxide, particulates, and VOCs are measured twice per year (the twice per year measurements of carbon monoxide and particulates provide cross checks of continuous measurements). Non-combustion point source and Fugitive emissions: Monitoring for non-combustion point sources and fugitive emissions is described in Table 2.10.1 (D) of the application and is summarized below. A2 chip washing sump vent, A3 Digester vent - flow rate, water, NOx, SO2, VOCs, CO, and H2S are monitored twice per year A7 paper dryers (7 vents, but only 2 sampled) - flow rate, H2O, NOx, SO2, VOCs, CO, H2S, and particulates are measured twice per year A8 cloudy water tank - NOx, SO2, VOCs, CO, and H2S are measured twice per year A10 chip hopper vent, A13 NSSC washer hood vent - flow rate, NOx, SO2, VOCs, CO, and H2S are measured twice per year A1 Sawdust (fugitive) - Sawdust deposition is measured weekly by BS 1747 Part 5 1972 A6 Blend chest vent - H2S is measured continuously (instrument reliability to be improved) A22 Re-winder trim handling exhaust, A23 sawdust cyclone exhaust - particulates measured to determine significance A28 Paper mill vacuum pump air exhaust - SO2, VOCs, and H2S measured to determine significance.	Operator plans to review vents A2, A3, A4, and A8, draw up an action plan, and present proposed improvements to these release points. Plan will take into account odor management plan presented in 2.3.14. 9.4 The Operator shall review the existing aerial vent configurations, in particular A2, A3, A4 and A5 and generate an action plan with proposed timescales for improvement. This plan shall take into account the sites odor management plan and be submitted to the EA. Status: May 29, 2002 letter from St. Regis contained the company's plan for controlling vents A1 through A14. The plans were a mixture of upgrading equipment and no additional action. [See also rows 2.3.12 - Control of Fugitive Emissions to Surface Water and Sewer, 2.3.14 - Odor.] 9.7 The Operator shall provide details of the on-site dust deposition monitoring system. The report shall include trended results from the date of use of the device and provide a quarterly update to the EA. Status: Letter from St. Regis dated 10/11/02 included a report on details of the dust monitoring system and monitored results (showing a trend toward lower dust deposition over time). A letter dated 1/29/03 provided additional dust deposition data (in graphs) for the last half of 2002. St. Regis submitted quarterly update on 4/8/03. EA letter of 5/30/03 requested that St. Regis send future deposition reports with a shorter time-base to allow greater resolution of individual events. St. Regis response of 7/3/03 confirmed that a shorter time base would be used and provided additional information on the daily deposition limit and a change to the dust deposition measurement methods. [See also row 2.3.12 - Control of Fugitive Emissions to Air.] 9.10 With reference to Tables 2.10.1 (B) and (C) of the application, the Operator shall provide details of the proposed monitoring Standard Reference Methods employed in both continuous monitoring and spot sampling for NOx, O2, VOCs, CO, CO2, and particulates (where applicable) from the combustion point source emissions. Also, with reference to Table 2.10.1 (D) of the application, provide details of the proposed monitoring Standard Reference Methods employed for spot sampling for NOx, SO2, VOCs, CO and H2S from the non-combustion point source emissions. Finally, with reference to Tables 2.10.1 (B), (C), and (D) of the application, details of the measurement uncertainties for all substances tested are to be included within the first response. The information is to be provided by 9/30/02 and any necessary implementation completed by 6/30/04. Status: Letter from St. Regis dated 10/11/02 provided the requested monitoring information. [See also rows 2.3.10 - Abatement of POint Source Emissions to Air, 2.10.4/2.10.4.1 - Monitoring Standards (standard Reference Methods)/Equipment Standards.] 9.11 The Operator shall provide details to demonstrate if the monitoring devices for CO, CO2, and O2 comply with the performance characteristics required by BS ISO 12039:2001. The information shall be provided by 9/30/02 and BAT assessment for whether compliant equipment is to be installed by 6/30/04.

Requirement	UK Technical Guidance	St. Regis Permit -- UK	St. Regis Improvement Program
Reporting of Emissions to Air		<p>From Table S2: Reporting of monitoring data (for air emissions):</p> <p>SO2 (mg/m3): Every 6 months (Release points: A1, A2, A3, A4, A5)</p> <p>SO2 (tonnes/year): Every 12 months (Release points: A6, A7, A8)</p> <p>VOCs (as carbon) (mg/m3): Every 6 months (Release points: A1, A2, A3, A4, A5, A8)</p> <p>Oxides of Nitrogen (mg/m3): Every 6 months (Release points: A6, A7, A8)</p> <p>Oxides of Nitrogen (tonnes/year): Every 12 months (Release points: A6, A7, A8)</p> <p>Particulates (mg/m3): Every 6 months (Release points: A1, A8)</p> <p>Hydrogen Sulfide (mg/m3): Every 6 months (Release points: A1, A2, A3, A4, A5, A9)</p> <p>CO (mg/m3): Every 6 months (Release points: A2, A3, A4, A6, A7, A8)</p>	<p><u>Status:</u> Letter from St. Regis dated 9/24/02 indicated that the monitoring equipment was not compliant with the ISO standard (it was not possible to calibrate the instruments with audit gases on line, although it might be possible off line). EA letter dated 11/15/02 to St. Regis indicated the company response was not adequate and requested more detail on the reasons the instruments are not compliant. St. Regis' follow-up letter of 1/3/03 provided additional detail of the boiler/incinerator monitors and proposed a path forward contingent upon incinerator re-start and a decision to proceed with constructing a CHP plant. EA letter of 3/31/03 requested that St. Regis provide a BAT assessment, by June 30, 2003, for the installation of BS ISO12093:2001 compliant monitoring equipment. A 5/13/03 letter from St. Regis indicated that the company would make the BAT assessment by 6/30/03. A 5/16/03 letter from EA asked for update reports "by the dates proposed." [I guess they meant the 6/30/03 date]. St. Regis letter of 7/3/03 proposed that the BAT assessment be delayed until after the OMA audit. In another letter (7/21/03) the EA agreed that this item be covered in an upcoming OMA audit later in the year.</p> <p>[See also rows 2.3.10 - Abatement of POint Source Emissions to Air, 2.10.4/2.10.4.1 - Monitoring Standards (standard Reference Methods)/Equipment Standards]</p>
2.1.3 Monitoring and Reporting of Waste Emissions	<p>Monitor and record:</p> <ul style="list-style-type: none">- physical and chemical composition of the waste- hazard characteristics- handling precautions and substances with which it cannot be mixed- for wastes disposed of directly to land, establish monitoring that takes into account the materials, potential contaminants and potential pathways from the land to ground-water, surface water, or the food chain	<p>Table 2.10.1(E) presents monitoring and frequencies for solid waste disposed of from the site. Within the EMS all solid wastes are recorded and reported to ensure compliance with Duty of Care and other regulations.</p> <p>Table 2.10.1(E) monitoring information is summarized below:</p> <p>P1 Recovered fiber Plant, fiber cleaning systems - Plant rejects are weighed (every load) and moisture content determined at least once per week.</p> <p>P2 Woodyard - Woodyard scrapings are weighed (every load)</p> <p>P3 Paper Machine - Sand separator rejects are weighed (every load) and tested for moisture content (at least once per week), heavy metals (per Table B2.10.1(f)), and Schedule 5 substances (monthly)</p> <p>P4 Precress System waste, P5 Engineering building rubble, and P6-P8 Sawdust - are weighed (every load) and subject to visual inspection (every load)</p> <p>P11 Curved effluent screens - Primary effluent rejects are weighed (every load) and tested for Moisture content (at least once per week), heavy metals (per Table B2.10.1(f)), and Schedule 5 substances (monthly)</p> <p>T1 Process systems and T2 Laoratory - redundant chemicals are treated as Special Waste and tested as and when required</p> <p>E1 Engineering - Waste oil stock-take and usage is monitored weekly and otherwise waste oil is treated as Special Waste and tested as and when required</p> <p>E8 Engineering - Old transformer oil is treated as Special Waste and tested as and when required</p> <p>E3 Engineering - Scrap metal is weighed (every load) and visually inspected (every load)</p> <p>E10 Sawdust Incinerator - Ash from combustion is incorporated into P2 (Woodyard scrapings)</p>	
		<p>Land Spreading - P3 Sand separator rejects are sent to land spreading. Monitoring and frequencies associated with this are shown in Table 2.10.1(F). Analysis is by Waste Disposal Contractor. The mill also plans to monitor material sent to land spreading for Schedule 5 substances monthly. Table 2.10.1(f) information is summarized below.</p> <p>1. Material sent to land spreading is tested for the following prior to spreading: Dry matter content, pH, total carbon, total Nitrogen, C:N ratio, total sulfur, total phosphorus, total potassium, total magnesium, total copper, total zinc, total cadmium, total nickel, total chromium, total lead, total mercury, neutralizing capacity as CaCO3, and neutralizing capacity as CaO.</p> <p>2. Soil to receive the sand separator rejects is tested prior to spreading for: pH, total copper, total zinc, total nickel, total, cadmium, total chromium, total mercury, total lead, available phosphate, available potassium, available magnesium, organic matter, and calcium carbonate.</p> <p>3. After application of 65 Te/Ha, the levels of potentially toxic elements in the soil is calculated (at pH 6.1) for: total copper, total zinc, total cadmium, total chromium, total lead, total mercury, and total nickel.</p>	

Requirement	UK Technical Guidance	St. Regis Permit -- UK	St. Regis Improvement Program
2.10.2 Environmental Monitoring (Beyond the Installation)	<div>- Consider the need for monitoring to assess the effects of emissions to controlled water, groundwater, air or land, or emissions of noise/odor</div> <div>- Monitoring may be needed where:</div> <div>- there are vulnerable receptors</div> <div>- emissions are significant contributor to an EQS</div> <div>- needed to validate modeling</div> <div>- mills in the UK discharge to controlled waters</div> <div>- the operator wishes to depart from standards based on lack of effect on the environment</div> <div>- (More specific guidance given that expands on the above)</div>	<div>The land onto which the sand separator rejects are spread is monitored by the contractor within the Code of Practice for Land Spreading.</div> <div>An Estuary Impact Study has been carried out by the EA, as detailed in section B.4.</div> <div>Where requested in writing by the Environment Agency, the Operator shall provide at least 14 days advance notice of undertaking monitoring/spot sampling.</div>	<div>With regard to the demonstration of BAT and continual improvement, the following improvement items have been included within the permit. The items relate to emissions monitoring (surface water and off site aerial) and improved fugitive release management.</div> <div>9.9 With reference to Table 2.10.1 (A) of the application, the Operator shall provide details of the proposed Standard Reference Methods employed in spot sampling and analysis or continuous monitoring for pH, flow rate, suspended solids, BOD, COD, sulfite, pentachlorophenol, Dieldrin, endrin, hexachlorohexane and metals. The information shall be provided by 9/30/02 and any necessary implementation completed by 6/30/03.</div> <div><u>Status:</u> St. Regis responded to this item in a letter to the EA dated 9/26/02. The EA responded in a letter dated 11/15/02 and said that the company’s response contained a number of anomalies regarding use and identification of Standard Reference Methods, but that another letter would be sent after the EA inspector obtained further guidance.(Note: EA sent to reminder letters to St. Regis telling the company that it had not received the required response, when indeed it had been sent on time. Subsequently, St. Regis faxed the original response to EA – different recipient).On 5/13/03 St. Regis noted in a letter that the company planned to be compliant with CEN standards for laboratory aqueous monitoring by December 2003. 5/16/03 letter from EA asked for update reports “by the dates proposed.” [I did not see any proposed dates, perhaps they were in some correspondence that is not part of my package]. In another letter (7/21/03) the EA proposed that this item be covered in an upcoming OMA audit later in the year. St. Regis letter dated 7/3/03 stated the company would use methods to analyze effluent for pH, COD, and suspended solids as specified in Appendix 1 of the Tech. Guidance Note (S6.01)</div> <div>[See also rows 2.10.4/2.10.4.1 - Monitoring Standards (Standard Reference Methods)/Equipment Standards.]</div> <div>9.25 The Operator shall prepare and submit a report into the chemical composition of surface water runoff from the waste paper storage and log storage area and potential discharges to groundwater following a period of monthly monitoring of not less than six months. 4/30/03.</div> <div><u>Status:</u> St. Regis letter of 5/16/03 indicated that the required report could not be submitted for several more weeks due to waiting on results of samples sent for analysis in March and April. EA letter of 5/16/03 (and a follow up letter of 7/21/03) asked for an expected submission date. St. Regis response of 7/3/03 indicated the report should be submitted by 7/11/03. In a letter dated 7/22/03, St. Regis submitted the required information on the chemical composition of surface water runoff. EA letter of 8/19/03 indicated that the EA considered this item complete.</div> <div>2.3.1 - Preparing Virgin Fiber, 2.10.1.1 - Monitoring and Reporting of Emissions to Water and Sewer.]</div>
2.10.3 Monitoring of Process Variables	<div>Monitor the following process variables, or justify alternative arrangements:</div> <div>- contaminants in raw materials</div> <div>- harmful substances in recovered paper (e.g., cadmium, PCP)</div> <div>- wire retentions of fiber</div> <div>- save-all efficiency</div> <div>- energy consumption</div> <div>- fresh water use</div> <div>- recycled water quality and circuit overflows</div> <div>- water levels of broke and white water tanks</div>	<div>Process control is computer-based and monitors the various tank and stock levels in the papermaking, NSSC pulping, and associated systems. These include the preparation and addition of sodium sulfite solution. Other monitored parameters are in Table 2.10.3 and are as follows:</div> <div>Waste Paper - subject to continuous visual inspection</div> <div>Wood chip moisture - manually sampled weekly</div> <div>Thickener performance - manually sampled twice per week</div> <div>DAF performance - manually sampled twice per week</div> <div>Fresh water consumption - daily integrator readings</div> <div>Recycle water loops - manually sampled three times per week</div> <div>Electricity and gas consumption - weekly integrator readings</div> <div>Heavy fuel oil (when in use) - daily integrator readings</div> <div>There shall be provided: (a) safe and permanent means of access to enable sampling/monitoring to be carried out in relation to the emission points specified in Schedule 2 [of the Permit], unless otherwise specified in that Schedule; and (b) safe means of access to other sampling/monitoring points when required by the Environment Agency.</div>	

Requirement	UK Technical Guidance	St. Regis Permit -- UK	St. Regis Improvement Program
4 Monitoring Standards (Standard reference methods) 4.1 Equipment standards	<p>As far as possible, ensure monitoring arrangements comply with the requirements of the EA's Monitoring Certification Scheme (MCERTS); where not in accordance with MCERTS, justify and describe the monitoring in detail</p>	<p>Sampling and Analysis Standards: Effluent sample analyses in the site laboratory are subject to the Management Systems (ISO 14001 or ISO 9002). Where appropriate, Bureau of Standards procedures are followed, otherwise HACH procedures are used.</p> <p>Standards of offsite analyses by contractors are subject to audit within the scope of the Environmental Management System.</p> <p><u>Equipment Standards:</u> Given the nature of monitoring requirements at the Sudbrook site, none of the monitoring complies with the MCERTS requirements. Where contractors are employed for measurements or sampling, the requirements and procedures of the EMS ensure that their equipment complies with appropriate standards. Calibration of all equipment is subject to procedures with the Environmental and Quality Management Systems. As a wider range of MCERTS equipment becomes available, specifically in the area of water monitoring, future investments in monitoring equipment will comply with this standard, subject to meeting cost and technical requirements.</p> <p>[2.10.5] Where new monitoring equipment is to be used or installed at the Permitted Installation, the Operator shall first consider whether equipment which has been certified under MCERTS certification scheme is available and suitable. Where this is the case, the Operator shall select and use certified equipment unless the Environment Agency agrees in writing that uncertified equipment of an equivalent standard and performance may be used.</p>	<p>9.9 With reference to Table 2.10.1(A) of the application, the Operator shall provide details of the proposed Standard Reference Methods employed in spot sampling and analysis or continuous monitoring for pH, flow rate, Suspended Solids, BOD, COD, sulphite, pentachlorophenol, Dieldrin, endrin, hexachlorohexane and metals. The information to be provided by 9/30/02 and any necessary implementation completed by 6/30/03. <u>Status:</u> St. Regis responded to this item in a letter to the EA dated 9/26/02. The EA responded in a letter dated 11/15/02 and said that the company's response contained a number of anomalies regarding use and identification of Standard Reference Methods, but that another letter would be sent after the EA inspector obtained further guidance.(Note: EA sent to reminder letters to St. Regis telling the company that it had not received the required response, when indeed it had been sent on time. Subsequently, St. Regis faxed the original response to EA – different recipient).On 5/13/03 St. Regis noted in a letter that the company planned to be compliant with CEN standards for laboratory aqueous monitoring by December 2003. 5/16/03 letter from EA asked for update reports “by the dates proposed.” [I did not see any proposed dates, perhaps they were in some correspondence that is not part of my package]. In another letter (7/21/03) the EA proposed that this item be covered to analyze effluent for pH, COD, and suspended solids as specified in Appendix 1 of the Tech. Guidance Note (\$6.01). [See also row 2.10.2 - Environmental Monitoring (Beyond the Installation).]</p> <p>9.10 With reference to Tables 2.10.1(B) and (C) of the application, the Operator shall provide details of the proposed monitoring Standard Reference Methods employed in both continuous monitoring and spot sampling for NOx, O2, VOCs, CO, CO2, and particulates (where applicable) from the combustion point source emissions. Also with reference to Table 2.10.1(D) of the application, provide details of the proposed monitoring Standard Reference Methods employed for the spot sampling for NOx, SO2, VOCs, CO, and H2S from the non-combustion point source emissions. Finally, with reference to Tables 2.10.1(B) and (C) of the application, details of the measurement uncertainties for all substances tested are to be included within the first response. The information to be provided by 9/30/02 and any necessary implementation completed by 6/30/04. <u>Status:</u> Letter from St. Regis dated 10/11/02 provided the requested monitoring information. [See also rows 2.3.10 - Abatement of Point Source Emissions to Air, 2.10.1.2 - Monitoring and Reporting of Emissions to Air.]</p> <p>9.11 The Operator shall provide details to demonstrate if the monitoring devices for CO, CO2, and O2 comply with the performance characteristics required by BS ISO 12039:2001. The information to be provided by 9/30/02 and BAT assessment for whether compliant equipment to be installed by 6/30/03. <u>Status:</u> Letter from St. Regis dated 9/24/02 indicated that the monitoring equipment was not compliant with the ISO standard (it was not possible to calibrate the instruments with audit gases on line, although it might be possible off line). EA letter dated 11/15/02 to St. Regis indicated the company response was not adequate and requested more detail on the reasons the instruments are not compliant. St. Regis' follow-up letter of 1/3/03 provided additional detail of the boiler/incinerator monitors and proposed a path forward contingent upon incinerator re-start and a decision to proceed with constructing a CHP plant. EA letter of 3/31/03 requested that St. Regis provide a BAT assessment, by June 30, 2003, for the installation of BS ISO12093:2001 compliant monitoring equipment. A 5/13/03 letter from St. Regis indicated that the company would make the BAT assessment by 6/30/03. A 5/16/03 letter from EA asked for update reports “by the dates proposed.” [I guess they meant the 6/30/03 date]. St. Regis letter of 7/3/03 proposed that the BAT assessment be delayed until after the OMA audit. In another letter (7/21/03) the EA agreed that this item be covered in an upcoming OMA audit later in the year. [See also rows 2.3.10 - Abatement of Point Source Emissions to Air, 2.10.1.2 - Monitoring and Reporting of Emissions to Air.]</p> <p>9.12 The Operator shall provide details to demonstrate the extent to which the sampling positions for combustion and non-combustion point source emissions comply with Clauses 9.2 to 9.5 and 10.4 of BS 6069:Section 4.3:1992. The details shall include descriptions, drawings, and any relevant pitot traverse data for the sampling positions and an assessment of the effect of any non-standard positions affect measurement uncertainties. Proposals for improving the sampling positions in order to minimize measurement uncertainty shall be defined. The information to be provided by 9/30/02 and BAT assessment for improving facilities including program of works by 6/30/03. <u>Status:</u> Letter from St. Regis dated 10/11/02 provided requested details on sampling locations. An EA response to St. Regis dated 3/31/03 requested an assessment of the effect of high particulate matter measurement uncertainty on emission limit compliance on release points A1 and A8. The letter also stated that stratification tests were needed for points A3, A4, A5, A6, and A7 to demonstrate that measurements are not adversely affected. A 5/13/03 response from St. Regis stated that the assessment and stratification tests would be reported by September 2003. A 5/16/03 letter from EA asked for update reports “by the dates proposed.” [I think that meant the September 2003 date from the St. Regis letter]. In another letter (7/21/03) the EA proposed that this item be covered in an upcoming OMA audit later in the year. [See also rows 2.3.10 - Abatement of Point Source Emissions to Air, 2.10.1.2 - Monitoring and Reporting of Emissions to Air.]</p> <p>9.28 The Operator shall complete an annual review of monitoring equipment used and the availability of MCERTS. An annual report detailing any proposed changes to be forwarded to the EA at the reporting address. (by 4/30/03 and annually thereafter) <u>Status:</u> St. Regis letter of 5/13/03 summarized monitoring of the boiler operations and effluent and indicated that there were no air emission monitors in the pulp mill or paper mill. The company reported MCERTS investigations came up with uncertain results, and further investigation was underway. 5/16/03 letter from EA asked for update reports “by the dates proposed.” [I did not see any proposed dates, perhaps they were in some correspondence that is not part of my package.] A letter dated 4/29/04 from St. Regis provided the required annual review of monitoring equipment and potential for use of equipment meeting MCERTS. The letter stated that the mill was spending large sums on other environmental improvements and did not expect to purchase new monitoring equipment, especially since availability was in doubt. EA's response of 8/2/04 indicated that MCERTS continuous monitoring equipment was unlikely to be necessary for the current combustion plant but requested a summary of in-process controls used to ensure meeting permit limits. EA further indicated that if in-process controls are deemed adequate, then the CEM requirements would be removed from the permit and periodic monitoring would be relied upon. On 5/27/05, St. Regis submitted to the EA the required annual report for this item.</p>

Requirement	UK Technical Guidance	St. Regis Permit -- UK	St. Regis Improvement Program
2.10.4.2 Sampling and Analysis Standards	Use the analytical methods in Appendix 1 for this sector (if other substances need to be monitored, use the methods from the prioritized list of organizations in the guidance [Updated guidance notes were in preparation at the time the pulp and paper guidance was issued – Technical Guidance Note 4]	2.10.5 The sampling and analysis to meet the periodic measurement requirements of emissions to air, as set out in Table 6.1.2 and reference measurements in order to calibrate continuous emission monitoring equipment shall be carried out as given by CEN standards. Until such time as the appropriate CEN standards are available, the following national standards shall be used: Carbon Monoxide – ISO/CD 12039. Particulate – BS3405, BS6069:Section 4.3, BS ISO 10155(for continuous monitoring equipment). Volatile Organic Compounds – BS EN12619.1999, BS EN 13526.2001 Nitrogen Oxides – BS ISO 10849.2001 Sulphur Dioxide – BS6069: Section 4.1, BS ISO 11632, BS6069: Section 4.4 (for continuous monitoring equipment).	
DECOMMISSIONING	Describe the proposed measures, upon cessation of activities, to avoid any pollution risk and return the site to a satisfactory state; cover all relevant issues pertinent to the installation, including those below: - taking steps at the design/build stage of activities (such as avoiding underground tanks, pipes; providing drains/cleanouts on vessels and pipeworks; designing lagoons and landfills with a view to their ultimate cleanup or surrender; using insulation that is readily dismantled without dust or hazard; and using materials that are readily recyclable - Preparing a site report to provide a point of reference for judging site deterioration over time - Maintaining a site closure plan to demonstrate that the installation can be decommissioned to avoid any pollution risk and return the site to a satisfactory state	The Operator shall make provision for decommissioning as described on page 67 and Appendix 2 of the application and according to Responses 5 and 8 to the Schedule 4 notice. Page 67 of the application refers to: Section B 1.3 of the application (Site Report) which describes the current condition of the Sudbrook Mill and to Section B 2.1 (EMS) which describes project planning procedures designed to ensure that de-commissioning issues are considered during the design stage. The Baseline condition of the site against which cleanup will be measured, shall be taken to be the oil and groundwater analyses presented in the Phase 2 Site Report dated September 2001 by Hyder Consulting.	9.24 The Operator shall prepare a decommissioning plan and submit a copy to the EA (by 4/30/03). <u>Status:</u> St. Regis submitted a letter to EA dated 5/8/03 indicating the company intended to ‘record’, using the mill EMS system, all information detailed in “Guidance for Operators on the Requirements of Closure Site Reports in PPC Permit Surrender Applications’ Consultation.” Subsequently, a full decommissioning plan would be formulated using the above records. EA letter of 5/16/03 asked St. Regis to forward the plan or advise of expected submission date. St. Regis letter of 7/3/03 stated the company was awaiting EA comments following the discussions of 7/1/03.
INSTALLATION-WIDE JES	- Where there is more than one operator of an installation, describe proposed techniques and measures for ensuring the satisfactory operation of the whole installation - Consider in these measures: - communication procedures - economies of scale to justify installation of a CHP plant - combining wastes to justify a waste-to-energy /CHP plant - waste from one facility as a feedstock to another - treated effluent from one facility possibly being used as raw water feed at another - combining effluent to justify a combined/upgraded effluent treatment plant - avoidance of accidents which may have detrimental effect on neighboring facility - land contamination from one facility affecting another	N/A to the Sudbrook Mill	

Requirement	UK Technical Guidance	St. Regis Permit -- UK	St. Regis Improvement Program
MISSION BENCHMARKS EMISSIONS INVENTORY D BENCHMARK MPARISON	<p>Provide a list or table of significant emissions of substances (not noise, vibration, odor, or heat) which will result from proposals in section 2; include following information:</p> <ul style="list-style-type: none">- substance- source- media of release- relevant EQS- benchmark- proposed emissions- statistical basis- notes on ability to comply with benchmark- whether measure or calculated- Cover point source emissions to surface water, groundwater and sewer, wastes, point sources to air, significant fugitive emissions to all media, abnormal emissions from emergency relief vents, flares, etc.- Emissions must meet all benchmarks	<p><u>Emissions to Air Inventory:</u></p> <p>Tables 3.1(C) and 3.1(D) of the Application lists the following substances along with the source, average concentration, media of release (vent size, height above ground, height above building), release rate, operating temperature, benchmark, emission normal or maximum, current or planned emission, normal or abnormal operation, and notes: H2O, NOx, SO2, VOCs, CO, H2S, Particulates, HCl, Dioxins, Steam, and NA2SO3.</p> <p>Benchmarks identified for various pollutants and sources are:</p> <p>General sources:</p> <ul style="list-style-type: none">- VOC's -- 50 mg/m3- Particulates -- 50 mg/m3- Fugitive Particulates -- no visible emissions <p>Boilers (S2 1.01):</p> <ul style="list-style-type: none">- CO -- 100 mg/m3- NOx -- 140 mg/m3- Particulates -- 5 mg/m3-SO2 -- 5 mg/m3 <p>Sawdust Incinerator (S2 1.05):</p> <ul style="list-style-type: none">- NOx -- 300 mg/m3- CO - 100 mg/m3- VOCs -- 20 mg/m3- Particulates -- 25 mg/m3- Dioxins -- 0.1-0.5 ng/l <p><u>Emissions to Water Inventory</u></p> <p>Mill Effluent Releases:</p> <ul style="list-style-type: none">- Water - 30 m3/Adt- COD - 273 kg/Adt- BOD - 91 kg/Adt- Fibrous Materials - 33 kg/Adt- Sodium Sulphite - 353 mg/L- [No indicative BAT Benchmark releases for the above pollutants for NSSC Mills]- Cadmium - 1.34, 1.26* ug/L [Benchmark 0.6, BREF Environmental Quality Standard (EQS) = 5 for Estuarine receiving waters]- Copper - 49 ug/L [Benchmark 5 Environmental Assessment Level (EAL)]* Lead - 34.6 ug/L [Benchmark 25 EAL]* Zinc - 247 ug/L [Benchmark 40 EAL]* Mercury - 0.067, 0.02* ug/L [Benchmark 0.1 BREF (EQS = 0.5)]* Pentachlorophenol (PCP) - 0.342, 0.30* ug/L [Benchmark 1 BREF (EQS = 2)]* Dieldrin - <0.32 ug/L (no result above limit of detection) [Benchmark 0.01 EQS]- Endrin - <0.25 ug/L (no result above limit of detection) [Benchmark 0.005 EQS]- Hexachlorohexane - 0.064 ug/L [Benchmark 0.02 EQS Estuarine]- Atrazine - 0.11 ug/L* <p>Fugitive Emissions</p> <ul style="list-style-type: none">- Run-off from Waste Paper Store and Trailer Park: (water pumped back to Effluent Plume)- COD - not tested- Schedule 5 Substances - not tested* Run-off from Woodyard: (water pumped back to Effluent Plume)* COD - not tested- Schedule 5 Substances - not tested <p>* 2000 data</p>	

Requirement	UK Technical Guidance	St. Regis Permit -- UK	St. Regis Improvement Program
3.2 EMISSION BENCHMARKS 3.2.1 Standards and Obligations	In addition to meeting BAT, other national/international standards/obligations must be safeguarded (Lists of air, water, and waste standards/directives followed)	<p>Where no benchmark value hs been provided in the technical guidance, the relevant Environmental Quality Standard (EQS), Environmental Assessment Level (EAL), National Air Quality Strategic Target or Air Quality Objective is presented (Application section B.3.2 Emission Benchmarks)</p> <p><u>Water:</u> The pulp mill effluent pond discharge is timed between 1.5 hours before high tide and 3 hours after high tide. Total daily discharge volume: 24,000 m3/day or 417L/s. A min/max for pH set at 5 and 9. 6.3.4 There shall be no emission into water from the Permitted Installation of any substance prescribed for water for which no limit is specified in Permit Table 6.3.2 except in a concentration which is no greater than the background concentration.</p>	<p>9.5 The Operator shall provide details of the effluent pond discharge system and the measures employed ensuring reliability of timed effluent discharges. (by 9/30/02). <u>Status:</u> St. Regis letter of 9/24/02 provided details of “Auto-Tide” software installation and integration into the company’s Foxboro control system. The software is designed to show a visible warning on the Foxboro screen when valves governing wastewater flow are to be opened or closed. The letter also contained detailed operating procedures for working with the new software. EA sent the submittal to the Public Register on 20/16/02. [See also row 2.3.11 - Abatement of Point Source Emissions to Surface Water and Sewer.]</p> <p>9.23 The Operator shall investigate environmentally beneficial process changes and effluent treatment technologies for the treatment of liquid effluents and provide an annual report having regard to BAT to the EA commencing with the date opposite (04/30/03). <u>Status:</u> Submittal from St. Regis to EA dated 5/1/03 provided results from the required investigation. Several technologies were mentioned, but only aerobic and anaerobic treatment were considered viable enough for more detailed discussion. Aerobic treatment was ruled out due to excessive operating costs (high energy use) and initial studies on anaerobic treatment were positive enough for St. Regis to propose running a pilot plant trial on site and report back to the EA by Dec. 2003. In a letter dated 5/16/03, EA asked for details of the proposed pilot plant trials and an assessment of environmental impacts prior to implementation. EA letter of 7/21/03 requested program details for the proposed pilot plant trials. St. Regis letter of 7/3/03 referred to an earlier EA/St. Regis meeting and that company was awaiting EA comments on the pilot trial plan. St. Regis letter of 4/29/04 stated that the company was pursuing anaerobic treatment of its black liquor, which effectively closed off this item. EA letter of 11/25/05 stated that the required annual update had not been received. St. Regis responded that it had indicated to the EA that it was pursuing anaerobic treatment, which effectively closed this item. Subsequently, anaerobic treatment was deemed unaffordable, and the mill has continued to investigate other options under item 9.31. [See also rows 2.2.1 - Preparing Virgin Fiber, 2.3.5 - NSSC Pulping and Chemical Recovery, 2.3.11 - Abatement of Point Source Emissions to Surface Water and Sewer.]</p>
2 Units for Benchmarks and ing Limits in Permits	Releases can be expressed in terms of concentration, specific mass release, absolute mass release	Air emission limits are expressed in both concentrations (mg/m3) and absolute mass release (tonnes) Tables 6.1.2 and 6.1.4	
3 Statistical Basis for chmarks and Limits in nits	Conditions in permits may be set with percentile, mean or median values over yearly, monthly, or daily periods, which reflect probable variation in performance	<p>Averaging periods for air emission limits include continuous, monthly, 6-months, and annual . Tables 6.1.2 and 6.1.4.</p> <p><u>Water:</u> Current EA policy dictates that when fewer than 20 valid analytical results exists for an effluent, the maximum permitted concentration should be estimated on the basis of twice the maximum measured result. With 11 sampling results available for the St. Regis facility -- EA policy sets permit limits at twice the maximum result. Limits will be reviewed as more sampling data is available.</p>	
4 Reference Conditions for ases to Air	Reference conditions are 273°K, 101.3 kPa, and no correction for water vapor or oxygen	Not expressly stated in permit.	
BOD	<p>- Other applicable standards and obligations include:</p> <p>- UK Water Quality Objectives (BOD – mg/l 90th%ile; dissolved O2 - % saturation 10th%ile) for different classes:</p> <p>- Class 1: 2.5; 80</p> <p>- Class 2: 4.0; 70</p> <p>- Class 3: 6.0; 60</p> <p>- Class 4: 8.0; 40</p> <p>- Class 5: 15; 20</p> <p>- Designated freshwaters (SI 1997/1331):</p> <p>- Salmonid: BOD guideline is 3 mg/l; dissolved O2 imperative median is > 9 and the guideline is a median > 9 with a minimum of 7</p> <p>- Cyprinid: BOD guideline is 6 mg/l; dissolved O2 imperative median is > 7 and the guideline is a median > 9 with a minimum of 5</p> <p>- Benchmark emission values:</p> <p>Post-treatment water flows for NSSC facility: 2.5-5 m3/ADt (yearly average)</p>	<p>No applicable BREF benchmark for BOD for an integrated NSSC Pulp and Paper Mill. There are no other NSSC pulp producing facilities in the UK.</p> <p>In the absence of a suitable benchmark, comparison is made with "other specialty integrated pulping mills and specialty papers" which sets a maximum value for BOD at 1.3 kg BOD/ADT.</p> <p>6.3.4 There shall be no emission into water from the Permitted Installation of any substance prescribed for water for which no limit is specified in Permit Table 6.3.2 except in a concentration which is no greater than the background concentration.</p>	
COD	<p>Benchmark emission values:</p> <p>Post-treatment water flows for NSSC facility: 2.5-5 m3/ADt (yearly average)</p>	<p>No applicable BREF benchmark for COD. Comparison with the "other specialty integrated pulping mills and specialty papers" benchmark presents a maximum value of 7.0 kg COD/ADT.</p> <p>6.3.4 There shall be no emission into water from the Permitted Installation of any substance prescribed for water for which no limit is specified in Permit Table 6.3.2 except in a concentration which is no greater than the background concentration.</p>	<p>9.22 The Operator shall upgrade the existing recovered paper pulping facilities to increase the proportion of waste based product and hence reduce the COD concentration in the liquid effluent discharge. A report detailing the plant upgrade will be provided by the date opposite (4/30/03) with a report detailing the installation and market development to be completed annually thereafter. <u>Status:</u> St. Regis’ letter of 5/1/03 indicated that the company had been unable to effect the planned changes at the facility to reduce COD in the plant effluent. The planned conversion to making a new product utilizing a greater percentage of recovered fiber (70%) did not pan out (lack of market for the type of product the mill could produce). Furthermore, shutdown of a competitor mill in Norway provided support for the mill’s existing product. The company’s plans changed to investigating effluent treatment to achieve a 20% COD reduction (see 9.23 below). [Note: Letter indicates economic stress mill was under, considering that markets for their products were declining. Prelude to the mill closure?] EA letter of 5/16/03 asked for verification of the market condition, such as through available independent market surveys. St. Regis letter of 7/3/03 said that the market information was a summary of internal SRP market intelligence, and that published articles on market trends would be sent. St. Regis letter of 4/29/04 stated that the company was pursuing anaerobic treatment of its black liquor, which effectively closed off this item. EA letter of 11/25/05 stated that the required annual update had not been received. St. Regis responded on 12/5/05 stating that although at the time of permit issuance the mill was planning to change to primarily a waste based facility, that plan was abandoned as the mill was unable to sustain an acceptable level of return on the new product mix. The company understood that this item was therefore closed. [See also rows 2.2.1 - Preparing Virgin Fiber, 2.3.5 - NSSC Pulping and Chemical Recovery, 2.3.11 - Abatement of Point Source Emissions to Surface Water and Sewer.]</p>

Requirement	UK Technical Guidance	St. Regis Permit -- UK	St. Regis Improvement Program
3.5 HALOGENS	<ul style="list-style-type: none">• Other applicable standards and obligations include:<ul style="list-style-type: none">- Designated freshwaters (SI 1997/1331): the total residual chlorine (as mg/l HOCl) allowed (imperative) is 0.005 for both Salmonid and Cyprinid- Dangerous Substances List 1: the limit for fresh or tidal waters is 12 mg/l of chloroform and 2 mg/l PCP (both annual averages)• Benchmark Emission Values:<ul style="list-style-type: none">- To air: From bleaching/broke recovery, Chloroform and Chlorine concentration limit is 5 mg/m3 (each compound) and the Chlorine dioxide limit is 1 mg/m3; From combustion/incineration, HCl and HF limits are referenced to Reference 14 of this Technical Guidance- To water: Pentachlorophenol limit is 1 µg/l and the AOX limit for a mill not using wet strength agents is 5 g/ADt	<p>Benchmark for PCP presented in Guidance Notes 1ug/L. Average of previous 5 years of data PCP concentration of 0.342 ug/L and maximum of 0.840ug/L, both concentration values less than the benchmark.</p> <p>6.3.4 There shall be no emission into water from the Permitted Installation of any substance prescribed for water for which no limit is specified in Permit Table 6.3.2 except in a concentration which is no greater than the background concentration.</p>	
3.6 HEAVY METALS	<ul style="list-style-type: none">• Other applicable standards and obligations include:<ul style="list-style-type: none">- Designated freshwaters (SI 1997/1331) – see Regulations for zinc/copper limits- Dangerous Substances emission limits List 1: fresh water limits for mercury and cadmium are 1.0 and 5 µg/l (annual average) respectively; coastal limits are 0.3 (Hg) and 2.5 (Cd) µg/l (annual average)• Benchmark Emission Values:<ul style="list-style-type: none">- To water: achievable levels (if required to meet water quality standards) of mercury and cadmium are 0.1 and 0.6 µg/l, respectively- To air: achievable levels for heavy metals from combustion/incineration – see appropriate guidance (Ref. 14)	<p><u>Water:</u></p> <p>Cadmium: 0.1 kg/day Cadmium: 0.005 mg/L Copper: 1.2 kg/day Copper: 0.19 mg/L</p> <p>Lead: 1 kg/day Lead: 0.12 mg/L Zinc: 10 kg/day Zinc: 0.76 mg/L</p>	
NITROGEN OXIDES	<ul style="list-style-type: none">• Statutory Instrument 1997 No. 3043, Environmental Protection, The Air Quality Regulations 1997 gives air quality objectives to be achieved by 2005 for nitrogen dioxide• Waste Incineration Directive (draft) requires a NOx level of 200 mg/m3• Benchmark Emission Values:<ul style="list-style-type: none">- To air: From energy recovery of bark or sludges the mass release limit is 60-80 mg NOx/MJ heat input and the concentration limit is 200 mg/m3; From combustion plant – see appropriate guidance note (Ref. 14)	<p><u>Release Level; Benchmark; Permit Limit for NOx (mg/m3)</u></p> <p>A1 Paper Dryer Exhaust Vents -- 0.8; N/A; N/A A2 Chip Washing Sump Vent -- 0.93; N/A; N/A A3 Digester Vent -- 1; N/A; N/A A4 Cloudy Water Tank Vent -- 2.2; N/A; N/A A5 Chip Hopper Vent -- 0.5; N/A; N/A A6 Main Boiler Stack -- 205; 140; 300 (gas) and 450 (HFO standby liquid fuel) A7 Temporary Boiler Stack -- ?; 140; 140; A8 Sawdust Incinerator Stack -- 285 mean and 308 max; 300; 450 (reduced from an existing limit of 650)</p> <p>Rationale for A6: Benchmark from IPC S2 1.01 includes low Nox combustion. Hence improvement item 9.19. Standby fuel limits taken from Large Combustion Plant Directive.</p> <p>Rationale for A8: IPC S2 1.05 and improvement item 9.19</p> <p>Annual mass limit for entire permitted installation: 170 tonnes</p>	<p>9.14 The Operator shall complete all monitoring measurements identified as “Note A’ in Table 3.1(C) of the Application and provide results in a report submitted to the EA. (by 12/31/02).</p> <p><u>Status:</u> The company’s letter to EA of 3/16/05 reviewed the status of the improvement program and indicated that the required monitoring measurements were reported to the EA on 1/8/03 [I did not have in my packet of information that correspondence]. [See also rows 3.9 - Particulate and Suspended Solids, 3.10 - Sulfur Dioxide, 3.11 - VOCs.]</p> <p>9.19 The Operator shall provide a report detailing a review of options considered to achieve reduced NOx releases from the boiler and incinerator and CO and particulate releases from the incinerator. The report to have regard to BAT and where applicable the Operator to provide an implementation plan detailing work schedules and associated timescales. (by 1/31/03)</p> <p><u>Status:</u> St. Regis letter dated 11/29/02 responded to this item. Incinerator was off line at the time and St. Regis said a review of NOx, CO, and particulates would be completed after restart. Boiler NOx initiatives were explained. The EA sent a response on 1/9/03 indicating that the company’s letter was not detailed enough and enumerated the deficiencies and extended the deadline for response to 7/31/03. EA follow up letter of 8/8/03 stated that St. Regis was late in their response and requested that the information be sent by 8/22/03. St. Regis responded in a letter dated 9/1/03. The response stated that the incinerator was still off-line and a review of NOx, particulate, and CO2 emissions had not been carried out. However, low NOx burners were now available for the high-pressure boilers and a schedule for installation was provided. EA response of 9/9/03 reminded St. Regis that any restart of the incinerator should include improvements considered to represent BAT for CO and particulates. EA also asked that St. Regis reconsider the time table for installing low NOx burners, so that implementation is complete at the earliest date possible. Justification for installation beyond 2005 should be made and St. Regis was asked to submit a revised program for installation by 10/6/03. St. Regis letter of 10/15/03 referred to a recent phone conversation and proposed further discussion with EA before making a formal reply.</p> <p>[See also rows 2.3.10 - Abatement of Point Source Emissions to Air, 3.9 - Particulate and Suspended Solids.]</p> <p>9.21 The Operator shall review annually the NOx factors in Table 6.1.6 of the permit and provide justified alterations where applicable. (by 1/31/03 and annually thereafter)</p> <p><u>Status:</u> The required information was enclosed with a letter dated 2/14/03 from St. Regis to the EA. Current factor 3.6 kg NOx/metric ton of gas burned recommended for next 12 months. EA responded on 3/31/03 by noting the apparent large range in the individual measured NOx factors and requested an assessment of how this error band could be reduced to provide a more realistic NOx factor. On 5/13/03, the company stated that the factor would be improved by closer monitoring of fuel use. A 2/13/04 letter from St. Regis provided results from recent monitoring which suggested that the current NOx emission factor was appropriate for use for the next 12 months. A similar letter with the same conclusion was received by EA on 1/31/05.</p>
NUTRIENTS (Phosphates Nitrates)	<ul style="list-style-type: none">• Other applicable standards and obligations:<ul style="list-style-type: none">- UK Water Quality Objectives: total ammonia in mg/l N 90th%ile for Class 1 – 0.25; Class 2 – 0.6; Class 3 – 1.3; Class 4 – 2.5; and Class 5 – 9.0 and non-ionized Ammonia (total) in mg/l N 95th%ile for Classes 1-3 – 0.021 (no limits for classes 4&5)- Designated freshwaters 1997/1331: Nitrite (in mg/l N) limits are 0.15 for Salmonid and 0.46 for Cyprinid; Ammonia total (in mg/l N 90th%ile) for Salmonid the limits are 0.78 (imperative) and 0.03 (guideline) and for Cyprinid 0.78 (imperative) and 0.16 (guideline); and non-ionized ammonia total (in mg/l N 95th%ile) the limits are 0.021 (imperative) and 0.004 (guideline) for both Salmonid and Cyprinid• Benchmark Emission Values:<ul style="list-style-type: none">None that apply to St. Regis (integrated NSSC mill)	<p>No applicable BREF benchmark for Nutrients. Comparison is made with values for "other specialty integrated pulping mills and specialty papers", which sets a maximum value for total N of 0.4 mg/L and for total P of 0.04 mg/L.</p>	

Requirement	UK Technical Guidance	St. Regis Permit -- UK	St. Regis Improvement Program
3.9 PARTICULATE AND SUSPENDED SOLIDS	<ul style="list-style-type: none">• Other applicable standards and obligations:<ul style="list-style-type: none">- Designated freshwaters (SI 1997/1331) : the Salmonid or Cyprinid water release guideline is 25 mg/l suspended solids (annual average)- Air: Statutory Instrument 1989 No 317, Clean Air, The Air Quality Standards Regulations 1989 gives limit values in air for suspended particulates- Air: Statutory Instrument 1997 No 3043, Environmental Protection, The Air Quality Regulations 1997 gives air quality objectives to be achieved by 2005 for PM10• Benchmark Emission Values:<ul style="list-style-type: none">- To water: No suspended solids limits applicable to St Regis- To air: No visible dust from storage yards and materials handling; 50 mg/m3 particulates from paper finishing and mechanical pulping (point of release); and for combustion/incineration – see appropriate guidance note (Ref. 14)	<p><u>Particulates:</u></p> <p>Release Level; Benchmark; Permit Limit for Particulates (mg/m3)</p> <p>A1 Paper Dryer Exhaust Vents -- 6.11; 50; 50</p> <p>A6 Main Boiler Stack -- N/A; 25 (50 for HFO); 50</p> <p>A8 Sawdust Incinerator Stack -- 55; 25; 100</p> <p>A5 Chip Hopper Vent -- ?; 50; NA</p> <p>A7 Temporary Boiler Stack -- ?; 50; NA</p> <p>A10 NSSC Washer Hood Vent -- ?; 50; NA</p> <p>A11 Rewinder Trim Handling Vent -- ?; 50; NA</p> <p>A12 Sawdust Cyclone Vent -- ?; 50; NA</p> <p>Note that monitoring is required for A7, A10, A11, and A12 via Improvement Program item 9.14</p> <p>Permit condition 6.1.7 requires that visible smoke emitted from the Main Boiler Stack or Temporary Boiler Stack be minimised when changing to/from standby fuel oil.</p> <p>Rationale for A6: Existing IPC limit = 100 mg/m3 taken from CIGN IPR 1/8. Improvement item 9.19 included to achieve improvements. Benchmark taken from IPC S2 1.05</p> <p>Rationale for A8: Normal operation gas firing. Particulate limit included for standby fuel firing taken from Large Combustion Plant Directive.</p> <p><u>Water:</u></p> <p>Suspended Solids: 20 tonnes/day [20,000 kg/day]</p>	<p>9.6 The Operator shall provide details of the proposed fibre recovery project to reduce suspended solids discharge to the Severn Estuary. The review to include a justified BAT assessment for the chosen option. <u>Status:</u> A letter dated May 20, 2002 from St. Regis gave details of the BAT analysis for reducing suspended solids in discharges to the Severn Estuary. Installation of a Dissolved Air Flotation unit was said to represent BAT (one of the options in the technical guidance document for the industry. St. Regis said installation and commissioning would be completed by the end of 2002. [See also row 2.2.1 - Raw Materials Selection.]</p> <p>9.14 The Operator shall complete all monitoring measurements identified as “Note A’ in Table 3.1(C) of the Application and provide results in a report submitted to the EA. (by 12/31/02). <u>Status:</u> The company’s letter to EA of 3/16/05 reviewed the status of the improvement program and indicated that the required monitoring measurements were reported to the EA on 1/8/03 [I did not have in my packet of information that correspondence]. [See also rows 3.7 - Nitrogen Oxides, 3.10 - Sulfur Oxides, 3.11 - VOCs.]</p> <p>9.19 The Operator shall provide a report detailing a review of options considered to achieve reduced NOx releases from the boiler and incinerator and CO and particulate releases from the incinerator. The report to have regard to BAT and where applicable the Operator to provide an implementation plan detailing work schedules and associated timescales. (by 1/31/03) <u>Status:</u> St. Regis letter dated 11/29/02 responded to this item. Incinerator was off line at the time and St. Regis said a review of NOx, CO, and particulates would be completed after restart. Boiler NOx initiatives were explained. The EA sent a response on 1/9/03 indicating that the company’s letter was not detailed enough and enumerated the deficiencies and extended the deadline for response to 7/31/03. EA follow up letter of 8/8/03 stated that St. Regis was late in their response and requested that the information be sent by 8/22/03. St. Regis responded in a letter dated 9/1/03. The response stated that the incinerator was still off-line and a review of NOx, particulate, and CO2 emissions had not been carried out. However, low NOx burners were now available for the high-pressure boilers and a schedule for installation was provided. EA response of 9/9/03 reminded St. Regis that any restart of the incinerator should include improvements considered to represent BAT for CO and particulates. EA also asked that St. Regis reconsider the time table for installing low NOx burners, so that implementation is complete at the earliest date possible. Justification for installation beyond 2005 should be made and St. Regis was asked to submit a revised program for installation by 10/6/03. St. Regis letter of 10/15/03 referred to a recent phone conversation and proposed further discussion with EA before making a formal reply. [See also rows 2.3.10 - Abatement of Point Source Emissions to Air, 3.7 - Nitrogen Oxides.]</p>
SULFUR DIOXIDE	<ul style="list-style-type: none">• Other applicable standards and obligations:<ul style="list-style-type: none">- Statutory Instrument 1989 No 317, Clean Air, The Air Quality Standards Regulations 1989 gives limit values in air for sulfur dioxide- Statutory Instrument 1997 No 3043, Environmental Protection, The Air Quality Regulations 1997 gives air quality objectives to be achieved by 2005 for sulfur dioxide- UNECE convention on long-range transboundary pollution: The second sulfur protocol (Oslo, 1994) obliges the UK to reduce SO2 emissions by 80% (based on 1980 levels) by 2010• Benchmark Emission Values:<ul style="list-style-type: none">- From energy recovery of bark or sludge the limit is 5-10 mgS/MJ fuel input- From the combustion plant – see appropriate guidance note (Ref. 14)	<p>Release Level; Benchmark; Permit Limit for SO2 (mg/m3)</p> <p>A1 Paper Dryer Exhaust Vents -- 9.9; 200; 50</p> <p>A2 Chip washing Sump Vent -- 3.91; 200; 500</p> <p>A3 Digester Vent -- 15.8; 200; 50</p> <p>A4 Cloudy Water Tank 'Vent -- 40.6; 200; 100</p> <p>A5 Chip Hopper Vent -- 5.4; 200; 50</p> <p>A6 Main Boiler Stack -- N/A; 5; N/A</p> <p>A8 Sawdust Incinerator Stack -- N/A; 300; N/A</p> <p>Rationale for A1-A5: Taken from previous CIGN IPR 6/8 and compared with currently available technical guidance for chemical sector (clearly this is not directly representative of the process, however no indicative BAT benchmark levels are listed). Also, the ADMS results indicate that main SO2 concerns arise from the burning of HFO. Permit limits have been reduced below benchmark levels where possible to reduce headroom and reflect operational performance.</p> <p>Rationale for A6: Gas firing. SO2 limits not included for standby fuel firing due to sulphur restrictions listed in condition 6.1.11 of the permit. Also releases due to these restrictions are less than guidance figures listed in the Large Combustion Plant Directive. See critique of ADMS report.</p> <p>Rationale for A8: IPC S2 1.05</p> <p>Annual mass limit for entire permitted installation: 450 tonnes until 01/01/03; 110 tonnes thereafter</p> <p>Only fuel oils with a Sulphur content not exceeding the following concentrations may be used as a standby fuel for combustion: Gas Oil: 0.2% Sulphur (Until 31/12/07) 0.1% Sulphur (From 1/1/08) HFO: 1% Sulphur (From 1/1/03)</p>	<p>9.14 The Operator shall complete all monitoring measurements identified as “Note A’ in Table 3.1(C) of the Application and provide results in a report submitted to the EA. (by 12/31/02). <u>Status:</u> The company’s letter to EA of 3/16/05 reviewed the status of the improvement program and indicated that the required monitoring measurements were reported to the EA on 1/8/03 [I did not have in my packet of information that correspondence]. [See also rows 3.7 - Nitrogen Oxides, 3.9 - Particulate and Suspended Solids, 3.11 - VOCs.]</p>
VOCs	<ul style="list-style-type: none">• Other Applicable Standards and Obligations:<ul style="list-style-type: none">- The Solvents Directive: does not seem to apply to St. Regis (no paper coating)•Benchmark Emission Values:<ul style="list-style-type: none">- Papermaking: For solvent emissions greater than 5 t/yr the benchmark is 80 mg/m3- Mechanical Pulping: For volatile wood compounds (e.g., fatty acids, acetic acid, formic acid, resin acids, turpentine, ethanol, methanol) and emissions greater than 1 kg in any 24 hour period the benchmark is 50 mg/m3- Combustion/incineration: for VOCs and dioxins – see appropriate guidance (Ref. 14)	<p><u>Release Level; Benchmark; Permit Limit for VOCs (mg/m3)</u></p> <p>A1 Paper Dryer Exhaust Vents -- 11.5; 50; 50</p> <p>A2 Chip Washing Sump Vent -- 30.75; 50; 50</p> <p>A3 Digester Vent -- 39.8; 50; 50</p> <p>A4 Cloudy Water Tank Vent -- 36.75; 50; 50</p> <p>A5 Chip Hopper Vent -- 10.7; 50; 50</p> <p>A8 Sawdust Incinerator Stack -- 8.3; 20; 20</p> <p>A10 NSSC Washer Hood Vent -- ?; 50; NA</p> <p>A16 Paper Mil Vac Pump Air Vent -- ?; 50; NA</p> <p>Monitoring required for A10 and A16 via Improvement Program item 9.14</p>	<p>9.14 The Operator shall complete all monitoring measurements identified as “Note A’ in Table 3.1(C) of the Application and provide results in a report submitted to the EA. (by 12/31/02). <u>Status:</u> The company’s letter to EA of 3/16/05 reviewed the status of the improvement program and indicated that the required monitoring measurements were reported to the EA on 1/8/03 [I did not have in my packet of information that correspondence]. [See also rows 3.7 - Nitrogen Oxides, 3.9 - Particulate and Suspended Solids, 3.10 - Sulfur Dioxide.]</p>

Requirement	UK Technical Guidance	St. Regis Permit -- UK	St. Regis Improvement Program
4 IMPACT 4.1 ASSESSMENT OF THE IMPACT OF EMISSIONS ON THE ENVIRONMENT	<ul style="list-style-type: none">• Provide an assessment of the potential effects (including transboundary effects) of the foreseeable emissions• Describe the receiving environment (include maps as appropriate); identify important pollution receptors (such as population areas, odor sensitive areas, flora, fauna, soil, water, etc.)• Identify pathways that will expose receptors• Carry out an assessment of the potential impact of total emissions from the activities on these receptors (see Ref. 5); the assessment must include comparison with: community EQS levels; other statutory obligations; non-statutory obligations; environmental action levels (EALs) and other environmental and regulatory parameters defined in Ref. 5• Consider whether this assessment demonstrates that the necessary measures have been taken pollution (by the application of BAT, no significant pollution will be caused); where there is uncertainty, the measures in Section 2 should be revisited, as appropriate, to make further improvements	<p>[Note: The St. Regis permit does not contain a section concerning the assessment of the impact of emissions on the environment and, thus, there are no permit requirements. The Decision Document discusses the impact assessment provided by St. Regis in Section 4 of their application (pages 78-88).]</p> <p>The application contained an air dispersion modeling analysis for both long term predicted environmental concentrations and maximum percentile process contributions for NOx, NO2, SO2, CO, PM10, H2S, VOC, and CO2. The predicted environmental concentrations (predicted concentrations added to background) range from 2.06% to 68.34% of the ambient standards with SO2 being the pollutant of greatest concern followed by PM10.</p>	<p>9.8. The Operator shall redo the air dispersion modeling and modeling/air impact assessment report to correct for the deficiencies identified by the EA. The detailed specification of this work and its presentation must be agreed beforehand with the EA. (by 9/30/02).</p> <p><u>Status:</u> Letter from St. Regis to the EA dated 8/27/02 transmitted the company’s proposed modeling parameters. A note on the letter indicates that the EA had a discussion with the company about the submission and eventually agreed with the proposal (note dated 9/4/02). However, a later letter to the EA, dated 5/13/03, addressed a few remaining issues: collecting data when light fuel oil is burned, obtaining critical load thresholds for receptors, and obtaining VOC speciation data. An EA letter of 7/21/03 asked for the “expected date for submission of the detailed scope and programme for completion of the further assessments requested in my letter of 31st March 2003.” [In the only EA letter of that date in my packet of information, there was no reference to the above further assessments.] EA letter of 10/21/03 stated that impact assessment results for boiler #6 indicated low “headroom”, irrespective of actual background levels, and implied that a BAT assessment should be undertaken without delay. EA proposed to discuss a way forward at their next meeting.</p>
4.2 THE WASTE MANAGEMENT LICENSING REGULATIONS	Explain how the application also demonstrates that the requirements of the relevant objectives of the Waste Management Licensing Regulations 1994 have been addressed, or provide additional information	<p>[Note: The St. Regis application stated that the mill was not subject to the Waste Management Licensing Regulations by virtue of storing less than 15,000 tons (metric) of waste on site. The permit does not contain any terms related to the Waste Management Licensing Regulations.]</p>	
THE HABITAT REGULATIONS	<ul style="list-style-type: none">• Assess whether the installation is likely to have a significant effect on a European site in the UK and if it is, assess implications of the installation for that site, for the purposes of the Conservation Regulations 1994 (SI 1994/2716)	<p>[Note: The permit contains does not contain terms related to the Habitat Regulations. The St. Regis application discusses sensitive areas near the mill that may be affected by mill emissions and suggests that these would be investigated under the Improvement Plan.]</p>	<p>9.31 The Operator shall carry out further studies of the impact of their effluent discharges on the interest features of the Severn Estuary Special Protection Area (SPA), proposed Special Area of Conservation (SAC), RAMSAR and River Wye candidate (SAC) in support of the submitted Habitats Assessment Report and its conclusions. The scope of the study and report shall be agreed with the Environment Agency before commencement. A copy of the final report shall be provided to the EA (12/31/03).</p> <p><u>Status:</u> In a letter dated 11/24/04, St. Regis included a brief report of the impact of their effluent discharges on the Severn Estuary. A potential problem with the smaller continuous release (from the paper machine and recovered paper recycling plant) was identified. The company proposed addressing that problem before beginning work on the anaerobic treatment system (which would now begin in the fiscal year beginning in May 2006). St. Regis identified two options for addressing the continuous effluent’s effect. St. Regis provided another update in a letter dated 3/8/05. The letter contained information on further consideration of the two options previously identified for ameliorating the effect of the continuous effluent and also reported on a new option for recovering energy from the black liquor effluent (identified by their consultant), which would reduce both the black liquor discharge and the continuous discharge (and presumably obviate the need for building an anaerobic treatment facility). A letter dated 5/5/05 from St. Regis further updated EA regarding the options being considered. Looked as though they were seriously considering the option of recovering energy from the black liquor.</p> <p>[See also rows 2.2.1 - Raw Materials Selection, 2.3.5 - NSSC Pulping and Chemical Recovery, 2.3.11 - Abatement of Point Source Emissions to Surface Water and Sewer.]</p>
		<p>[Note: The permit numbering system deviates from the Technical Guidance document (and the application) numbering system at Section 3. The permit contains Section 3 - Records, Section 4 - Reporting, and Section 5 - Notifications. There are no direct counterparts in the Technical Guidance or application. Sections 3, 4, and 5 apparently contain standard terms, added by the EA, that likely appear in all IPPC permits. These sections are described below.]</p> <p><u>3.0 Records:</u></p> <p>3.1 .1 A record shall be made of:</p> <p>a) any malfunction, breakdown or failure of plant, equipment, or techniques (including down time and any short-term and long term remedial measures) that may have, has had, or might have had an effect on the environmental performance of the Permitted Installation. These records shall be kept in a log maintained for that purpose.</p> <p>b) all monitoring and sampling taken or carried out in accordance with the conditions of this permit and any assessment or evaluaition made on the basis of such data.</p> <p>3.1.2 There shall be made available for inspection by the EA at any reasonable time: Specified Records; any other records made by the Operator in relation to the operation of the Permitted Installation (Other Records).</p> <p>3.1.3 A copy of any Specified or Other Records shall be supplied to the EA on demand and without charge.</p> <p>3.1.4 Specified Records and Other Records shall:</p> <p>a) be legible;</p> <p>b) be made as soon as reasonably practicable; and</p> <p>c) indicate any amendments which have been made and shall include the original record wherever possible.</p> <p>3.1.5 Specified Reords and Other Records shall be retained for a minimum period of 4 years from the date when the records were made.</p> <p>3.1.6 For all waste received at or produced from the Permitted Installation, the Operator shall record (and shall retain such records for a minimum of 4 years):</p> <p>a) its composition, or as appropriate, description;</p> <p>b) the best estimate of the quantity produced;</p> <p>c) its disposal routes; and</p> <p>d) the best estimate of the quantity sent for recovery.</p> <p>3.1.7 A record shall be made at the Permitted Isntallaion of any complaints concerning the Installation’s effect or alleged effect on the environment. The record shall give the date of complaint, time of complaint, a summary of any investigation, and the results of such investigation. Such records shall be made in a log kept for this purpose.</p> <p><u>4.0 Reporting:</u></p> <p>4.1.1 All reports and notifications required by this Permit, or by Regulation 16 of the PPC Regulations, shall be sent to the EA at the address notified in writing to the Operator by the EA.</p> <p>4.1.2 The Operator shall report the parameters listed in Table S2 to Schedule 2 as follows:</p> <p>a) in respects of the emission points specified;</p> <p>b) for the reporting periods specified in Table S2 to Schedule 2 and using the forms specfied in Table S3 to Schedulre 3;</p> <p>c) giving the information from such results and assessments as may be required by the forms specfied in those Tables; and</p> <p>d) sending the report to the EA within 28 days of the end of the reporting period.</p>	

Requirement	UK Technical Guidance	St. Regis Permit -- UK	St. Regis Improvement Program
RECORDS, REPORTING, AND NOTIFICATION		<p>4.1.3 The Operator shall, within 36 months of the issue of this Permit, submit a report on potential environmental improvements to the Permitted Installation. For each of the subject areas identified in Section 2 of the appropriate technical guidance, the report shall assess the costs and benefits of alternative techniques that may provide environmental improvement. This shall include, but not be limited to, those techniques listed in guidance. The methodologies used should justify, against BAT criteria, where potential improvements are not planned to be implemented. As part of their management system the Operator shall submit an updated report every 36 months.</p> <p>4.1.4 Where the Operator has a formal EMS applying to the Permitted Installation which encompasses annual improvement targets, the Operator shall, not later than January 31 in each year, provide a summary report of the previous year's progress against such targets.</p> <p>4.1.5 Fugitive emissions shall be reviewed on an annual basis and a summary report on this review shall be sent to the EA detailing such releases and the measures taken to reduce them.</p> <p><u>5.0 Notifications:</u></p> <p>5.1.1 The Operator shall notify the EA without delay of:</p> <p>a) the detection of an emission of any substance which exceeds any limit of criteria in this Permit specified in relation to the substance;</p> <p>b) the detection of any fugitive emission which has caused or may cause pollution unless the quantity emitted is so trivial that it would be incapable of causing pollution;</p> <p>c) the detection of any malfunction, breakdown, or failure of plant or techniques which has caused or may have the potential to cause pollution; and</p> <p>d) any accident which has caused or may have the potential to cause pollution.</p> <p>5.1.2 The Operator shall submit written confirmation to the EA of any notification under condition 5.1.1 of this Permit by sending:</p> <p>a) the information listed in Part A of Schedule 1 to this Permit within 24 hours of such notification and</p> <p>b) the more detailed information listed in Part B of that Schedule as soon as practicable thereafter.</p> <p>5.1.3 The Operator shall give written notification, as soon as practicable, of any of the following:</p> <p>a) permanent cessation of the operation of any part of or all of the Permitted Installation;</p> <p>b) cessation of the operation of any part of or all of the Permitted Installation for a period likely to exceed 1 year; and</p> <p>c) resumption of the operation of any part of or all of the Permitted Installation after a cessation notified under 5.1.3 (b).</p> <p>5.1.4 The Operator shall notify the following matters to the EA, in writing, within 14 days of their occurrence (where the Operator is a registered company):</p> <p>i) any change in the Operator's trading name, registered name, or registered office address;</p> <p>ii) a change to any particulars of the Operator's ultimate holding company (including details of an ultimate holding company where the Operator has become a subsidiary);</p> <p>iii) any steps taken with a view to the Operator going into administration, entering into a company voluntary arrangement, or being wound up.</p> <p>5.1.5 Where the Operator has entered into a Climate Change Levy Agreement with the Government, the Operator shall, within 14 days, notify the EA, in writing, in the event that the Secretary of State has not re-certified that agreement.</p> <p>5.1.6 Where the Operator has entered into the Emissions Trading Scheme by taking on a voluntary target with a financial incentive, the Operator shall, within 14 days, notify the EA, in writing, of either: a) a decision by the Operator to withdraw from the scheme, or b) failure to comply with the emissions trading scheme at the end of the 5-year period covered by the scheme.</p>	
CARBON MONOXIDE	Permit contains emission limits for specific sources but CO is not included in the Technical Guidance document structure.	<p>Permit emission limits for CO (mg/m3)</p> <p>A2 Chip Washing Sump Vent -- 100</p> <p>A3 Digester Vent -- 100</p> <p>A4 Cloudy Water Tank Vent -- 50</p> <p>A6 Main Boiler Stack -- 100</p> <p>A7 Temporary Boiler Stack -- 100</p> <p>A8 Sawdust Incinerator Stack -- 500</p>	
DIOXIN		<p>Permit does not include an emission limit for dioxin but controls dioxin emissions from the sawdust incinerator stack via condition 6.1.10 which prohibits the burning of treated or coated wood wastes. The permit application and review report notes the release level and benchmarks for dioxin as follows:</p> <p>Release Level; Benchmark ng/m3</p> <p>A8 Sawdust Incinerator Stack -- 0.009; 0.1</p>	
Additional U.S. Requirements			
Other			

Appendix I
Permit Matri:

The following table is meant to

Requirement	U.S. Requirements	Georgia-Pacific Permit and Other Documents -- Big Island, Virginia
2. TECHNIQUES FOR POLLUTION CONTROL		
Management Techniques	N/A	N/A
MATERIALS INPUTS	N/A	N/A
	N/A	N/A

US EPA ARCHIVE DOCUMENT

Requirement	U.S. Requirements	Georgia-Pacific Permit and Other Documents -- Big Island, Virginia
2.2.1 Raw Materials Selection		
2 Waste Minimization	Manifest must state that program to reduce volume and toxicity of hazardous waste is in place 40 CFR 262.23.	N/A

Requirement	U.S. Requirements	Georgia-Pacific Permit and Other Documents -- Big Island, Virginia
2.2.3 Water Use	40 CFR 125 (promulgated under CWA Section 316 (b)) contains requirements for intake volume, intake velocity and minimizing thermal impact of cooling waters for new facilities	N/A
MAIN ACTIVITIES AND ABATEMENT	<p>40 CFR 122.21 Application for a Permit - specifies information required for a permit application. Promulgated under CWA Section 308 Inspections, Monitoring, and Entry. Application requirements include: outfall locations; line drawing of water flow through facility; average flows and treatment; intermittent flows; maximum production; improvements; effluent characteristics including stormwater discharge and quantitative data of every outfall for BOD5, COD, TOC, TSS, ammonia (as N), Temperature (winter and summer), and pH; knowledge of the presence of toxic metals, cyanide, and total phenols; used or manufactured toxics; biological toxicity tests; and contract analysis.</p> <p>40 CFR 124.8 & 124.56 Factsheet - Requires the preparation of a factsheet for all NPDES permits, which includes the following information:</p> <p>1) A brief description of the type of facility or activity which is the subject of the draft permit;</p> <p>(2) The type and quantity of wastes, fluids, or pollutants which are proposed to be or are being treated, stored, disposed of, injected, emitted, or discharged.</p> <p>(3) For a PSD permit, the degree of increment consumption expected to result from operation of the facility or activity.</p> <p>(4) A brief summary of the basis for the draft permit conditions including references to applicable statutory or regulatory provisions and appropriate</p> <p>(5) Reasons why any requested variances or alternatives to required standards do or do not appear justified;</p> <p>(6) A description of the procedures for reaching a final decision on the draft permit;</p> <p>(7) Name and telephone number of a person to contact for additional information.</p> <p>(8) For NPDES permits, provisions satisfying the requirements of §124.56.</p> <p>(9) Justification for waiver of any application requirements under §122.21(j) or (q) of this chapter</p> <p>Any calculations or other necessary explanation of the derivation of specific effluent limitations and conditions or standards for sewage sludge use or disposal, including a citation to the applicable effluent limitation guideline, performance standard, or standard for sewage sludge use or disposal as required by §122.44 and reasons why they are applicable or an explanation of how the alternate effluent limitations were developed.</p> <p>40 CFR part 70 requires air permit applications to contain information on air emissions abatement activities.</p>	<p>Process flowcharts may have been included in G-P's permit application. They are not included in the permit.</p> <p>General startup, shutdown, and malfunction provisions are included in section XI.O. In addition, section V details the MACT plan requirements for startup, shutdown, and malfunction.</p>

Requirement	U.S. Requirements	Georgia-Pacific Permit and Other Documents -- Big Island, Virginia
1 Preparing Virgin Fiber	N/A	State requirements apply to wood chip handling, with a focus on controlling particulate emissions. Applicable requirements for Chip Handling are found in 9 VAC 5-50-80, Standard for visible emissions, and 9 VAC 5-50-90, Standard for Fugitive Dust/Emissions.
1.2 Chipping	Applicable requirements for Chip Handling are found in 9 VAC 5-50-80, Standard for visible emissions, and 9 VAC 5-50-90, Standard for Fugitive Dust/Emissions. These requirements are placed in the Title V permit as part of the Facility Wide Conditions and the General Conditions, respectively.	N/A
2 Preparing Recovered Fiber	N/A	N/A
3 Mechanical Pulping	N/A	N/A
4 Chemical Pulping	N/A	N/A

Requirement	U.S. Requirements	Georgia-Pacific Permit and Other Documents -- Big Island, Virginia
5 NSSC Pulping and Chemical Recovery	N/A	N/A

Requirement	U.S. Requirements	Georgia-Pacific Permit and Other Documents -- Big Island, Virginia
2.3.6 Other Chemical Pulping Processes	N/A	N/A
2.3.7 Bleaching	N/A	N/A
2.3.8 Papermaking	N/A	N/A
2.3.9 Coating	N/A	N/A
	<p>As a major source under the federal Prevention of Significant Deterioration (PSD) program, the source is required to install BACT controls on new and modified air emissions units causing emissions increases over certain thresholds.</p> <p>Hazardous Air Pollutants (HAPs) addressed through NESHAPS and MACT standards: Subpart S (40 CFR 63) - Controls HAP emissions from pulp and paper production areas of mills using kraft, sulfite, semi-chemical, and soda pulping processes (MACT I), and controlling HAPs from areas using mechanical, secondary fiber, and non-wood pulping, and papermaking systems at mills (MACT II). Subpart MM (40 CFR 63) - Controls HAPs from chemical recovery processes that involve the combustion of spent pulping liquor at kraft, soda, sulfite, and stand-alone semi-chemical mills (MACT III). Specific HAP control requirements for semi-chemical pulping include: - 98% reduction by weight of total HAP; or - Introduce HAP emission stream with primary fuel or into flame zone of a boiler, lime kiln, or recovery furnace; or - Introduce HAP emission stream with combustion air of a boiler or recovery furnace with a heat input capacity of 150 MMBtu/hr or greater; or - Use of a thermal oxidizer (incinerator) with minimum temperature of 1600 °F and residence time of 0.75 seconds; or - Reduction to 20 ppmv corrected to 10 percent oxygen outlet concentration of total HAP from an incinerator (thermal oxidizer).</p> <p>Smelters in the old chemical recovery unit are required to operate a scrubber and mist eliminator to control PM, per state regulation (9 VAC 5 Chapter 40). The plant must install a new chemical recovery unit to comply with MACT II.</p> <p>Per Virginia Administrative Code (VAC), Condensates must be controlled from all equipment in the following systems: digester system, turpentine recovery system, evaporator system, LVHC collection system, and HVLC collection system; and Low NOx burners are required to control NOx emissions on Boiler No. 6.</p> <p>Low NOx burners are required to control NOx emissions on Boiler No. 6.</p>	<p>No. 4 Boiler: Particulate emissions from the No. 4 Boiler shall be controlled by multicyclones and electrostatic precipitators (ESPs). (9 VAC 5-80-110).</p> <p>No. 5 Boiler: Particulate emissions from the No. 5 Boiler shall be controlled by the existing multiclone and ESP(s). (9 VAC 5-80-110, 9 VAC 5-80-10 H, 9 VAC 5-50-260, and Condition 3 of 11/21/96 Permit).</p> <p>No. 6 Boiler: Nitrogen Oxides emissions from the No. 6 Boiler shall be controlled by low NOx burners for each fuel and flue gas recirculation (9 VAC 5 -80-110, 9 VAC 5-80-1180, 9 VAC 5-50-260 A and Condition 3 of 6/30/95 Permit, as amended 2/26/03).</p> <p>Pulp Mill Equipment: The permittee shall control the total HAP emissions from the Low Volume, High Concentration system. The Low Volume, High Concentration (LVHC) system means the collection of equipment including the digester and evaporator systems, and any other equipment serving the same function as those previously listed. (9 VAC 5-80-110 and 40 CFR 63 Subpart S).</p> <p>Chemical recovery system: The permittee shall control the total HAP emissions from the evaporator system (REC04). Particulate emissions from the Recovery Smelter No. 1 (REC01) and the Recovery Smelter No. 2 (REC02) shall be controlled by a venturi scrubber and a mist eliminator. Particulate emissions from the reformer subsystem’s media bin shall be controlled by a fabric filter. Sulfur dioxide emissions from the shall be controlled by a scrubber. Nitrogen oxide emissions from the fuel-firing boiler component of the steam generation subsystem (“Reformer Boiler”) shall be controlled by low-NOx burners for both natural gas and product -gas.(9 VAC 5-80-110).</p> <p>New chemical recovery system using gasification, including throughput limit for pulp washers to avoid PSD review.</p> <p>Linerboard mill equipment - fabric filter controls PM emissions from starch silo</p> <p>MACT I Requirements: The permittee shall control the total HAP emissions from the Low Volume, High Concentration system as specified in Conditions VI.A.4 and VI.A.5. The Low Volume, High Concentration system (LVHC) means the collection of equipment including the digester and evaporator systems, and any other equipment serving the same function as those previously listed. (9 VAC 5-80-110, 40 CCR 63.441, and 40 CFR 63.443(b))</p>

Requirement	U.S. Requirements	Georgia-Pacific Permit and Other Documents -- Big Island, Virginia
2.3.10 Abatement of Point Sources of Emissions to Air		

Requirement	U.S. Requirements	Georgia-Pacific Permit and Other Documents -- Big Island, Virginia
11 Abatement of Point Source Emissions to Surface Water and Sewer	<p>Best Management Practices to control or abate the discharge of pollutants 40 CFR 122.44(k) - Authorized under section 304(e) of the CWA for the control of toxic pollutants and hazardous substances from ancillary industrial activities.</p> <p>40 CFR 122.21 Application for a Permit</p> <p>NPDES permit limits are based on the more stringent of either the Federal Effluent Guidelines for Pulp, Paper, and Paperboard Point Source Categories (40 CFR 430), Subpart F - promulgated under CWA Section 402 or 40 CFR 131, Water Quality Standards.</p> <p>40 CFR 430, Subpart F includes the following: Best Practical Control Tech. Currently Avail. (BPT) (40 CFR 430.62) Best Conventional Poll. Control Tech. (BCT) (40 CFR 430.63) Best Avail. Tech. Economically Achievable (BAT) (40 CFR 430.64) New Source Performance Stds (NSPS) apply to new direct discharge sources (40 CFR 430.65) Pretreatment Standards for Existing Sources (PSES) (40 CFR 430.66) Pretreatment Standards for New Sources (PSNS) (40 CFR 430.67)</p>	<p><u>Discharge Treatment Methods:</u></p> <p>The following are methods currently employed by GP to reduce point source emissions to surface water and sewer: Dechlorination (Outfall 002); Bar screen, comminutor, surge tank, extended aeration tank, clarifier, tablet chlorinator, chlorine contact tank (Outfall 301); WWTP – screen, primary clarifier, nutrient feed system, equalization basins (2), activated sludge tank, secondary clarifier, polishing pond, subsurface diffuser, sludge-gravity thickener, sludge chemical conditioning, belt filter press (Outfall 003); Sediment trap (Outfall 012); Baffled sediment basin (Outfall 021); Sediment basin (Outfall 022, 026 & 028).</p>
11.2 Water Treatment for Papermaking	N/A	N/A
11.3 Options for Specific Types	N/A	N/A

Requirement	U.S. Requirements	Georgia-Pacific Permit and Other Documents -- Big Island, Virginia
2.3.12 Control of Fugitive Emissions to Air	State rules (9 VAC 5-50-90, Standard for Fugitive Dust/Emissions) address fugitive dust emissions from wood chipping and other operations. MACT/NESHAP standards address control of fugitive HAP emissions from pulping process equipment, relying on enclosures to ensure that emissions are captured and routed to abatement controls.	Applicable requirements for Chip Handling are found in 9 VAC 5-50-80, Standard for visible emissions, and 9 VAC 5-50-90, Standard for Fugitive Dust/Emissions. These requirements are placed in the Title V permit as part of the Facility Wide Conditions and the General Conditions, respectively. Applicable requirements for activities MIS01, paved roads, MIS02 unpaved roads, and MIS03, Landfill Activities, are found in 9 VAC 5-40-90, Standard for Fugitive Dust/Emissions. These requirements are placed in the Title V permit as part of the General Conditions.

Requirement	U.S. Requirements	Georgia-Pacific Permit and Other Documents -- Big Island, Virginia
2.3.13 Control of Fugitive Emissions to Surface Water, Sewer, and Groundwater	<p>The Clean Water Act 402(p)(2)(B) requires permits for storm water discharges associated with industrial activity. Categories of industrial activity defined at 40 CFR 122.26.</p> <p>Best management practices for control of storm water (40 CFR 122.26(c)) - Application requirements for storm water discharges associated with industrial activity and storm water discharges associated with small construction activity. Also 40 CFR 122.44(k) - Authorized under section 402(p) of the CWA for the control of storm water discharges.</p> <p>Spill Prevention Control and Countermeasure (SPCC) Plans required at facilities that store or use oil or oil products, and which because of their location, could reasonably be expected to discharge oil into navigable waters (40 CFR 112, promulgated under CWA Section 311(b)).</p> <p>Discharges of Reportable Quantities of Hazardous Substances must be reported to appropriate agencies of US Government (40 CFR 116 and 117).</p> <p>122.41 (e) Proper Operation and Maintenance</p> <p>40 CFR 122.21 Application for a Permit - applicant must disclose any stormwater emissions.</p> <p>Comprehensive State Ground Water Protection Programs (CSGWPPs) establish a partnership between the states, tribal governments, and the EPA to implement EPA's ground water protection goal and principles. There is no program in VA.</p> <p><i>More research needed on pretreatment standards for indirect discharges from pulp and paper mills.</i></p>	<p>In accordance with the Storm Water General Permit Regulation, 9 VAC 25-151-10 et seq., the industrial sector specific monitoring requirements and a Storm Water Pollution Prevention Plan (SWPPP) have been required for this facility. Required components of the SWPPP include pollution prevention team; site description; summary of potential pollutant sources; spills and leaks; sampling data; storm water controls; and BMP types to be considered.</p>
14 Odor	<p>No federal requirements address odor. Odor is typically addressed by State or local nuisance laws and regulations.</p> <p>Control odors from solid waste landfills 9 VAC 20-80-270 C.2</p>	<p>Control odors from landfills #198 and 549</p> <p>[DBeck: Are there no odor control requirements (such as techniques to employ) other than the mandate to "control odors"?]</p>
EMISSIONS TO GROUNDWATER	<p>Groundwater monitoring plan required for solid waste landfills (9 VAC 20-80-270 C.8)</p> <p>Sole Source Aquifer program, under the SDWA prohibits federal funds from being expended on projects that may contaminate the sole or principal source of drinking water for a given area. (This does not appear to be relevant to the GP Big River plant.)</p>	<p>The permittee shall continue sampling and reporting in accordance with the revised groundwater monitoring plan approved on December 7, 2001. The purpose of this plan is to determine if the system integrity is being maintained and to indicate if activities at the site are resulting in violations of the Board's Ground Water Standards. The approved plan is an enforceable part of this permit. Semiannual monitoring of groundwater required. State Water Control Law § 62.1-44.21 authorizes the Board to request information needed to determine the discharge's impact on State waters. Groundwater monitoring or parameters of concern will indicate whether possible lagoon seepage is resulting in violations to the State Water Control Board's Groundwater Standards. Compliance report dates have been added to continue the previous schedule of testing and allow the permittee adequate time to compile data and prepare reports.</p>

Requirement	U.S. Requirements	Georgia-Pacific Permit and Other Documents -- Big Island, Virginia
5 WASTE HANDLING	<p><u>Virginia Solid Waste Regulations</u> 9 VAC 80-270</p> <p>A. Landfills cannot be sited in flood areas, unstable areas, close to water body, close to wetlands, areas where ground water monitoring cannot be conducted.</p> <p>B. Design/construction – control access,proper communications, control runoff, have ground water monitoring, proper drainage, liner system, leachate collection, gas management plan.</p> <p>C. Operation – control access, dust and odors, runoff; prevent safety hazards, open burning; prohibited, maintain records, conduct groundwater monitoring and corrective action, establish vegetative cover, keep appropriate equipment and qualified personnel on hand</p> <p>D. Conduct ground water monitoring program.</p> <p>E. Closure - close facility in a manner that minimizes need for further maintenance and controls post closer escape of uncontrolled leachate; have closure plan</p> <p>F. Post closure – conduct for 10 years or as long as leachate is generated, prepare written plan</p> <p><u>RCRA Small Quantity Generator Hazardous Waste Requirements</u> 40 CFR 262, 9 VAC 60-262</p> <p>1) Identify waste and count waste generated 2) Have EPA Identification Numbers 3) Limit accumulation of waste to 180 days or 270 days if disposal site is over 200 miles away 4) Ensure safe transportation, proper labeling, marking, and placarding 5) Track movement of waste through manifest 6) Manage hazardous waste containers properly, inspect weekly.</p> <p>(for complete list of regulatory requirements for waste handling see http://www.deq.state.va.us/waste)</p>	<p>Any and all products, materials, industrial wastes, and/or other wastes resulting from the purchase, sale, mining, extraction, transport, preparation, and/or storage of raw or intermediate materials, final product, by-product or wastes, shall be handled, disposed of, and/or stored in such a manner so as not to permit a discharge of such products, materials, industrial wastes, and/or other wastes to State Waters, except as expressly authorized. 9 VAC 25-31-50 A prohibits the discharge of any wastes into State waters unless authorized by permit. The Code of Virginia § 62.1-44.16 and 62.1-44.17 authorizes the Board to regulate the discharge of industrial waste or other waste. State Water Control Law § 62.1-44.18:2 authorizes the Board to prohibit any waste discharge that would threaten public health or safety, interfere with or be incompatible with treatment works or water use.</p> <p>Georgia Pacific Industrial Landfill, Permits # 198 (closed landfill) and 549 (operating landfill) Permit Module 1 – General Permit Conditions</p> <p>A. Effect of Permit - Allows permittee to dispose of solid waste on – site in accordance with the conditions of the permit.</p> <p>B. Duties and Responsibilities – Permittee must comply with all the conditions of the permit and 9 VAC 20-80-10 et. Seq.</p> <p>i. Noncompliance may be authorized by a schedule of compliance, but otherwise is in violation.</p> <p>ii. The permittee must comply with requirements of RCRA Subtitle D 40 CFR 258 as they become applicable.</p> <p>iii. Must minimize releases and take measures to prevent significant adverse impacts on human health and the environment.</p> <p>iv. Permittee must at all times properly maintain and operate all units.</p> <p>v. Must furnish to the Director, relevant information as requested.</p> <p>vi. Must allow Director or representative to enter facility, have access to records, inspect and sample.</p> <p>vii. Facility must have a certified operator.</p> <p>viii. Groundwater protection standards established</p> <p>C. Documents to be Maintained at the Facility</p> <p>i. Design Plans</p> <p>ii. Operations Manual</p> <p>iii. Closure and Post Closure Plan</p> <p>iv. Groundwater Monitoring Plan</p> <p>v. Others – monitoring records, inspection records, daily operational records</p> <p>D. Additional Documents to be Submitted</p> <p>i. QA/QC certification documents for each new cell.</p> <p>ii. As built/s for new groundwater monitoring wells</p> <p>iii. Certification of postclosure monitoring and maintenance completed</p> <p>iv. Extend postclosure care period if by request of Director</p> <p>E. Site Specific Conditions</p> <p>i. Facility must have financial assurance to cover closure and post closure care.</p> <p>ii. Wastes temporarily stored in partially constructed cell must be moved</p> <p>Permit Module II – Operations</p> <p>A. Only accept onsite waste</p> <p>B. Waste streams permitted in the landfill include old corrugated container rejects, wood yard wastes, dewatered sludge (wastewater plant) ash (fly and bottom) mill trash (segregated), recovery solids, demolition wastes.</p> <p>C. No hazardous waste will be accepted</p> <p>D. Anticipated staffing designated</p> <p>E. Formal training required</p> <p>F. Phase development of solid waste cells specified</p> <p>G. Operational conditions</p> <p>i. Site access detailed</p> <p>ii. Litter, dust, odor and vector controlled</p> <p>iii. Open burning prohibited</p> <p>H. Filling Operation – procedures for placing waste in cells and equipment specified</p> <p>I. Procedures and specs for compaction and cover specified</p> <p>J. Final and vegetative cover specified</p> <p>K. Waste Analyisis Plan detailed</p> <p>L. Safety plan outlined including safety practices and equipment</p> <p>M. Emergency contingency plan including fire control, releases to the environment, weather.</p> <p>N. Incoming waste must be inspected hauler</p> <p>O. Groundwater monitoring and gas management procedures identified</p> <p>Permit Module II – 2 Temporary Tarp Cover Plan</p> <p>Permit Module V – Design and Construction Drawings</p> <p>Permit Module X and X I- --Phase I and II Monitoring (closed landfill)</p> <p>A. Must be capable of determining facilities impact on the quality of the groundwater in the uppermost aquifer.</p> <p>B. Must maintain a groundwater monitoring system that meets the requirements of 9 VAC 20-80-270</p> <p>C. Network consists of 5 wells, 2 background and 3 downgradient</p> <p>D. Monitoring for Phase I includes pH, TOX and TOC</p> <p>E. Monitoring for Phase II includes all Appendix 5.5 constituents (including Metals, VOCs, Semi VOCs, Herbicides, Pesticides, Polychorinate Biphenyls</p> <p>F. Granted variance to use ACLs for as groundwater protection standards for 160 constituents</p> <p>G. Sampling and analysis procedures must be consistent with the 9 VAC 20-80-270</p> <p>H. Statistical procedures, data evaluation, recordkeeping and reporting shall be completed in accordance with that section.</p> <p>Permit Modules XII and XIII – Closure and Post Closure Care</p>

Requirement	U.S. Requirements	Georgia-Pacific Permit and Other Documents -- Big Island, Virginia
2.6 WASTE RECOVERY AND DISPOSAL	40 CFR Part 503 Standards for the Use or Disposal of Sewage Sludge. Promulgated under CWA Section 405 (d) Disposal of Sewage Sludge - Regulations.	<p>The Board may promptly modify or revoke and reissue this permit if any applicable standard for sewage sludge use or disposal promulgated under Section 405(d) of the Clean Water Act is more stringent than any requirements for sludge use or disposal in this permit, or controls a pollutant or practice not limited in this permit.</p> <p>The permittee shall conduct all sewage sludge use or disposal activities in accordance with the Sludge Management Plan (SMP) approved with the reissuance of this permit (9 VAC 25-31-100 P; 220 B2; and 420 and 720, and 40 CFR Part 503) .</p> <p>Asbestos demolition and renovation requirements NESHAP, Subpart M, and VA requirements.</p>
ENERGY 1 Basic Energy uirements (1)	N/A	N/A
2 Basic Energy uirements (2)	N/A	N/A
3 Sector Specific Energy uirements	N/A	N/A
ACCIDENTS AND THEIR NSEQUENCES	CAA 112(r) Risk Management Program requirements address prevention and response associated with accidental chemical releases to air.	[Placeholder - the interview guide contains a question asking whether the GP facility is subject to CAA 112(r).]
1 Identifying the Hazards	CAA 112(r) requires most pulp & paper mills to develop Risk Management Plans that identify hazards that may result from accidental releases of extremely hazardous substances.	<p>Safety Plan and Emergency Contingency Plan for Solid Waste Landfill 549</p> <p>[Placeholder - the interview guide contains a question asking whether the GP facility is subject to CAA 112(r).]</p>
2 Assessing the Risks	CAA 112(r) requires facilities meeting the Risk Management Program (RMP) thresholds (most pulp mills) to follow Program 1 requirements: - conduct off-site analysis evaluating worst-case and alternative release scenarios; - record 5-yr. history of accidental releases; - develop and revise at least every five years a Risk Management Plan.	[Placeholder - the interview guide contains a question asking whether the GP facility is subject to CAA 112(r).]

Requirement	U.S. Requirements	Georgia-Pacific Permit and Other Documents -- Big Island, Virginia
2.8.3 Techniques to Reduce the Risks	CAA 112(r) Program 2 and 3 requirements affect many pulp and paper mills: - develop and maintain an integrated prevention program to manage risk, including hazard identification, procedures, training, maintenance, and accident investigation; - develop and maintain an emergency response program; - implement an overall management system to put these program elements into effect.	Accidental release prevention – if the permittee has, or will have, more than a threshold quantity of a regulated substance in a process, permittee shall comply with 40 CFR 68. The permittee shall notify the Department as soon as they know or have reason to believe that: 1. any activity has occurred or will occur which would result in the discharge, on a routine or frequent basis, of any toxic pollutant which is not limited in this permit. Specific notification limits are recommended (9 VAC 25-31-200 A). 2. any activity has occurred or will occur which would result in any discharge, on a nonroutine or infrequent basis, of a toxic pollutant which is not limited in this permit. Specific notification limits are recommended (9 VAC 25-31-200 A).
NOISE AND VIBRATION	N/A	N/A
MONITORING		

Requirement	U.S. Requirements	Georgia-Pacific Permit and Other Documents -- Big Island, Virginia
2.10.1 Emissions Monitoring	See entry for 2.10.1.1	See entry for 2.10.1.1

Requirement	U.S. Requirements	Georgia-Pacific Permit and Other Documents -- Big Island, Virginia
2.10.1.1 Monitoring and Reporting of Emissions to Water and Sewer	<p>40 CRF Part 136 Guidelines Establishing Test Procedures for the Analysis of Pollutants</p> <p>40 CFR Part 122.41 (j) Conditions Applicable to all Permits - Monitoring and Records</p> <p>40 CFR Part 122.44 (i) Establishing Limits, standards, and other Permit Conditions - Monitoring Requirements</p> <p>40 CFR Part 122.48 Requirements for Recording and Reporting of Monitoring Results</p> <p>40 CFR Part 430.02 - Monitoring Requirements (establishes minimum monitoring frequency for specific pollutants)</p> <p>(Specific analytical sampling requirements are outlined in row 2.10.4.2 of this table)</p>	<p><u>Monitoring Requirements:</u></p> <p>Flow - measured 1/wk (Outfall 001); 5 day/wk (Outfall 002); continuous (Outfall 003); 1/day (Outfall 301); estimate 1/3 months (Storm Water Outfalls 555, 014, 017, 021); estimate 1/yr (Storm Water Outfalls 012, 015, 018, 022, 023, 025)</p> <p>pH - measured 1/wk (Outfall 001); 5 day/wk (Outfalls 002 & 003); 1/day (Outfall 301) 1/yr (Storm Water Outfalls 555, 012, 014, 018, 021) using grab samples</p> <p>BOD5 - measured 1/wk using 24-hour composite samples (Outfalls 001, 002 & 003); 1/month using grab samples (Outfall 301); annual grab sample (Storm Water Outfalls 555, 012,014, 017, 021)</p> <p>Total Residual Chlorine - measured 1/day using grab samples (Outfalls 001, 002, 301)</p> <p>Temperature - measured 5 day/wk (Outfalls 001 and 002); 1/wk (Outfall 003)</p> <p>Toxicity - 1/3 months 24 hour composite samples (Outfall 003)</p> <p>Heat Rejected - calculated 1/month (Outfalls 001, 002, 999)</p> <p>Color - measured 5 day/wk (Outfalls 001 , 002 & 003); 5 day/wk via 24-hr composite samples (Outfall 999)</p> <p>Whole Effluent Toxicity - annual chronic toxicity testing required (Outfalls 001 & 002); monitoring 1/every 3 months beginning August 31, 2009 (Outfall 003)</p> <p>Nutrients - Weekly nutrient monitoring includes total phosphorus, orthophosphate, total kjeldahl nitrogen (TKN) (as N), nitrate plus nitrite nitrogen (as N), and total nitrogen derived as the sum of TKN and nitrate plus nitrite. Monitoring will also include the calculation of the monthly total nitrogen and total phosphorus load and of the cumulative annual load of total nitrogen and total phosphorus from the plant. The annual load will be cumulative for each calendar year (Outfall 003); nitrate plus nitrite annual grab samples (Storm Water Outfall 012, 022, 023)</p> <p>Total Suspended Solids - annual grab sample (Storm Water Outfall 555, 012, 014, 017, 018, 022, 023, 025, 026, 028)</p> <p>Dissolved Copper - quarterly grab samples (Storm Water Outfall 555, 014, 017)</p> <p>Dissolved Zinc - quarterly grab samples (Storm Water Outfall 021)</p> <p>Total Recoverable Iron - annual grab sample (Storm Water Outfall 022, 023, 025, 026, 028)</p> <p>COD - annual grab sample (Storm Water Outfall 023)</p> <p><u>Conditions Applicable to all VPDES permits:</u> Samples and measurements taken as required by this permit shall be representative of the monitored activity; Monitoring shall be conducted according to procedures approved under Title 40 Code of Federal Regulations Part 136 or alternative methods approved by EPA, unless other procedures have been specified in this permit. The permittee shall periodically calibrate and perform maintenance procedures on all monitoring and analytical instrumentation at intervals that will insure accuracy of measurements. Detailed records of monitoring must be kept and retained for 3 years.</p> <p>Any permittee who discharges or causes or allows a discharge of sewage, industrial waste, other wastes or any noxious or deleterious substance into or upon state waters or if any unusual or extraordinary discharge including a bypass or upset should occur from a treatment works and the discharge enters or could be expected to enter state waters, this should be reported.</p> <p>A written notice and a plan of action must be submitted when the monthly average flow influent to the sewage treatment plant reaches 95 percent of the design capacity authorized in this permit for each month of any three consecutive month period (9 VAC 25-31)</p> <p>Groundwater monitoring plans and records to be retained at the facility.</p>
2.10.1.2 Monitoring and	<p>MACT standards include minimum federal monitoring and reporting requirements for pulping operations. Monitoring and testing, recordkeeping, and reporting requirements are described in the permit, referencing MACT I (40 CFR 63 Subpart S) and MACT II (40 CFR 63 Subpart MM). HAP emissions associated with semi-chemical pulping must be monitored by continuous parametric monitoring, except for pulping vent systems routed to a power boiler, lime kiln, or recovery furnace. Continuous Emissions Monitoring (CEMS) is allowed as an alternative. All components require monthly visual inspections for equipment leaks using Method 21. Methanol or chlorine are surrogate pollutants that must be measured (Method 305). MACT I includes extensive monitoring and recordkeeping requirements for the portion of the chemical recovery system that meets the definition of the LVHC system (i.e., evaporator system); these requirements are included in the Title V permit. MACT II monitoring, recordkeeping, testing, and reporting requirements for the new chemical recovery system ("smelters" combustion units) are included in the Title V permit.</p> <p>HAP emissions recordkeeping and reporting requirements include:</p> <ul style="list-style-type: none">- initial notifications- retaining records of performance tests and monitoring data- periodic reporting of periods of excess emissions <p>While NSPS Subpart Db applies to Boiler No. 6, most monitoring requirements for combustion sources are driven by state requirements and permit terms established to meet State Implementation Plan (SIP) requirements. NSPS requirements stipulate monitoring for combustion sources (boilers) for the following pollutants: PM, PM10, SO2, NOx, CO, VOC, Formaldehyde (Boiler No.6). Continuous emissions monitoring (CEMS) for NOx. The No. 6 Boiler is subject to the NSPS Subpart Db standard of opacity of 20 percent, with one excursion to 27 percent per hour, when the unit is firing diesel fuel. Compliance with the opacity limits in the Title V permit, which are based on BACT (ie., 10 percent, with one excursion to 20 percent), ensures compliance with the NSPS standard.</p> <p>Boilers No. 4 and 5 are not covered by any federal NSPS standard - only state requirements necessary to ensure compliance with NAAQS and the SIP. Because the No. 4 boiler is a fossil-fuel fired steam generator with a maximum heat input greater 250 MMbtu/hr, the unit is required to have a continuous opacity monitor (9 VAC 5-40-1000).</p> <p>For criteria pollutants, semi-annual reporting of excess emissions is required. Annual compliance certification report and failure malfunction reporting. All monitoring records must be retained on site for at least 5 years.</p> <p>Other chemical releases to air are reported annually as part of Toxics Release Inventory (TRI) reporting requirements (see other requirements below).</p>	<p>Failure and malfunction reporting depends on the type of emission unit and control.</p> <p>Annual compliance certification required as part of air operating requirements</p> <p><u>No. 4 Boiler:</u> The current Title V permit requires that the permittee maintain records of the coal sulfur content. Therefore, the periodic monitoring for SO2 is considered satisfied by the fuel sulfur content recordkeeping requirements. Records as may be necessary to determine emissions from the No. 4 Boiler, including, but not limited to, representative coal sulfur and ash content per shipment. Continuous emission monitoring systems shall be installed, calibrated,maintained, and operated as specified in Condition III.A.2.b to monitor and record opacity from the ESP stacks (E26 and E27). (9 VAC 5-80- 110, 9 VAC 5-40-40, and 9 VAC 5-40-1000).</p> <p><u>No. 5 Boiler:</u> Continuous emission monitoring systems shall be installed, calibrated, maintained, and operated as specified in Condition III.A.2.b to monitor and record opacity from the ESP stacks (E26 and E27). (9 VAC 5-80-110 E)</p> <p><u>No. 6 Boiler:</u> For Nox, An annual calculation of Equation #4, as shown in section III.D of this permit, Compliance Determination Procedures. The calculation shall include justification and documentation for each emission factor, higher heating value, annual fuel consumption value, and steam flow value used. The annual calculation shall be calculated as the sum of each consecutive 12 month period. If the result of Equation #4 is greater than 42.65 tons per year, the permittee shall report in writing to the West Central Regional Office within 14 days. (9 VAC 5-50-50 and Condition 24 of 6/30/95 permit, as amended 2/26/03). For SO2, the Title V permit includes a fuel sulfur content limit, and requires certification and recordkeeping to verify the actual fuel sulfur content. Furthermore, an extensive system of fuel flow and steam flow monitoring equipment is required in the pre-construction and Title V permits. Data from the flow monitoring systems is used in an equation defined in the permit. This equation must be considered regularly to track the SO2 emission rate, and if there is an exceedance of annual limit, GP must report this in writing. Therefore, the periodic monitoring requirements for SO2 emissions from the No. 6 boiler are considered satisfied by the hardware, recordkeeping and reporting requirements in the Title V permit. An annual calculation of Equations #5 is required. The calculation shall include justification and documentation for the sulfur content, each annual fuel consumption value, and each steam flow value used. The annual calculation shall be calculated as the sum of each consecutive 12 month period. If the result of Equation #5 is greater than 46.30 tons per year, the permittee shall report in writing to the West Central Regional Office within 14 days. (9 VAC 5-50-50 and Condition 24 of 6/30/95 permit, as amended 2/26/03).</p> <p>Continuous emissions monitors (CEMs) for NOx, CO2, and O2 are required for No. 6 Boiler and the Chemical recovery equipment using gasificaiton.</p> <p><u>MACT I requirements for Monitoring and Reporting:</u></p> <p>-Each enclosure or closed vent system shall comply with 40 CFR 63.453 (K)(1) through 40 CFR 63.453 (K)(6), including 30-day visual inspections, initial and annual positive pressure section testing, initial and annual negative pressure section testing, and corrective actions. ((VAC 5-80-110 and 40 CFR 63.453).</p> <p>-Permittee shall control emissions from the LVHC system (9 VAC 5-80-110 and 40 CFR 63.453)</p> <p>-Permittee shall comply with reporting requirements of 40 CFR Part 63 Subpart A</p> <p>-Permittee shall meet the requirement specified in Condition VI.D.1 upon startup of any new affected process equipment or pulping process condensate stream that becomes subject to the standards in this 40 CFR 63, Subpart S due to a process change or modification (9 VAC 5-80-110 and 40 CRF 63.455(d)</p>

Requirement	U.S. Requirements	Georgia-Pacific Permit and Other Documents -- Big Island, Virginia
Reporting of Emissions to Air		<p><u>MACT II Requirements for Monitoring and Reporting:</u></p> <p>-Permittee must monitor the parameters as approved by the Administrator or his/her delegate using methods nad procedures in Condition VII.B.2 (9 VAC 5-80-110 and 40 CFR 63.864(a)(5)</p> <p>-Permittee for an affected source or process unit seeking to demonstate compliance with the standards in Condition VII.A.3 using a control technique other than those listed in 40 CFR 63.864(a)(1) through (3) must provide a monitoring plan including a description of the control device, test results verifying its performance, and appropriate operating parameters to be monitored. (9 VAC 5-80-110, 40 CFR 63.865(f), and 40 CFR 63.8(f)</p> <p>-Permittee must develop and implement a startup, shutdown, and malfunction plan including procedures for responding to any process parameter levels that is inconsistent with the levels established under Condition VII.C.2 (e.g., procedures to determine and record the cause of an operating parameter exceeence and corrective actions to be taken in the event of an operating parameter exceedance) (9 VAC 5-80-110 and 40 CFR 63.866(a)</p> <p>-Permittee must submit notifications from 40 CFR 63 Subpart A, General Provisions</p> <p>-Excess Emissions Report - permittee must report quarterly if measured parameters meet any of the conditions specified in Condition VII.C.3(a) or (b).</p>
.1.3 Monitoring and orting of Waste Emissions	<p>Identify hazardous wastes generated and all applicable listings and characteristics (40 CFR 262 Subpart A)</p> <p>Keep copies of hazardous waste manifests (40 CFR 262 Subpart B)</p> <p>Keep solid waste landfill monitoring data (9 VAC 20-80-300 E)</p>	N/A

Requirement	U.S. Requirements	Georgia-Pacific Permit and Other Documents -- Big Island, Virginia
2.10.2 Environmental Monitoring (Beyond the Installation)	N/A	N/A
2.10.3 Monitoring of Processables	N/A	N/A

Requirement	U.S. Requirements	Georgia-Pacific Permit and Other Documents -- Big Island, Virginia
.4 Monitoring Standards (standard reference methods) .4.1 Equipment standards	<p>Standard air emissions monitoring methods (e.g., Method 9, Method 21, Method 305) are stipulated in federal requirements (e.g., NSPS and MACT standards). The permit references the method that must be followed, although the details for conducting these methods are only contained in the permit by reference.</p> <p>Federal standards for continuous emissions monitoring apply where continuous emissions monitoring is required (e.g., NSPS Db requires CEMS for NOx). Quality assurance procedures in Appendix F to 40 CFR 60 are used to evaluate the effectiveness of quality control (QC) and quality assurance (QA) procedures and the quality of data produced by any CEMS that is used for determining compliance with the emission standards on a continuous basis as specified in the applicable regulation.</p>	<p>The Title V permit references several EPA test and monitoring methods (e.g., Methods 9 and 22), and requires that the facility document which EPA-approved methods are being used for all testing and monitoring activities performed by the facility.</p>

Requirement	U.S. Requirements	Georgia-Pacific Permit and Other Documents -- Big Island, Virginia
2.10.4.2 Sampling and Analysis Standards	<p>40 CFR 136 Guidelines Establishing Test Procedures for the Analysis of Pollutants.</p> <p>40 CFR 430, Appendix A</p> <p>Specific test methods related to air emissions monitoring are referenced in the Title V permit, including: Method 9 - Visual Determination of the Opacity of Emissions from Stationary Sources Method 21 - Determination of Volatile Organic Compound Leaks Method 22 - Fugitive Opacity Method 305 - Potential VOC in Waste</p> <p>[DBeck: This section should contain sampling and analysis methods applicable to G-P. I know there are air methods that must be used to demonstrate compliance, and no doubt water/waste methods as well. Perhaps we just indicate in the US reqts. column that MACT I and II (and other applicable stds.) contain sampling and analysis requirements applicable to G-P, and then in the G-P permit column list the specific applicable methods.]</p>	<p>In accordance with VPDES Permit Regulation, 9 VAC 25-31-190 J4 and 220 I, DEQ is authorized to establish monitoring methods and procedures to compile and analyze data on water quality, as per 40 CFR Part 130, Water Quality Planning and Management, Subpart 130.4. This condition is necessary when toxic pollutants are monitored by the permittee and a maximum level of quantification and/or specific analytical method is required in order to assess compliance with a permit limit or to compare effluent quality with a numeric criterion. This condition also establishes protocols for calculation of reported values.</p> <p>Effluent Characteristic; Quantification Level Chlorine; 0.10 mg/L BOD5; 5.0 mg/L COD; 10 mg/L Total Suspended Solids; 1.0 mg/L Color; 1.0 PCU Copper; 10.4 mg/L Zinc; 92 mg/L Total Kjeldahl Nitrogen; 0.50 mg/L Nitrate plus Nitrite; 0.50 mg/L Total Nitrogen; 0.50 mg/L Total Phosphorus; 0.01 mg/L Orthophosphate; 0.01 mg/L Iron; 0.40 mg/L</p> <p>Whole Effluent Toxicity test procedures should be in accordance with those outlined in 40 CFR 136.3.</p> <p>The Title V permit and applicable requirements reference various EPA-approved test methods that must be followed, including: Method 9 - Visual Determination of the Opacity of Emissions from Stationary Sources Method 21 - Determination of Volatile Organic Compound Leaks Method 22 - Fugitive Opacity Method 305 - Potential VOC in Waste</p> <p>[DBeck: Are there any waste standards that should be listed here?]</p>
DECOMMISSIONING	<p>For solid wastes, close facility in a manner that minimizes need for further maintenance and controls post closer escape of uncontrolled leachate, surface water runoff or waste decomposition products to any media,; have a closure plan. (9 VAC 20-80-270 E).</p>	<p>Asbestos demolition and renovation requirements NESHAP, Subpart M, and VA requirements.</p> <p>Closure and post closure plans for solid waste landfills 198 and 549</p>
INSTALLATION-WIDE JES	<p>N/A</p>	<p>N/A</p>

Requirement	U.S. Requirements	Georgia-Pacific Permit and Other Documents -- Big Island, Virginia
MISSION BENCHMARKS EMISSIONS INVENTORY D BENCHMARK MPARISON	<p>Air emissions: Per Part 70.5 of 40 CFR, a source's permit application must describe all emissions of regulated air pollutants emitted from any emissions unit, except where such units are exempted. The application must also identify and describe all points of emissions in sufficient detail to establish the basis for fees and applicability of requirements of the Clean Air Act, as well as emissions rates in tpy and in such terms as are necessary to establish compliance consistent with the applicable standard reference test method. The Title V permit lists all emissions units (including insignificant emissions units) and describes limits for relevant pollutants based on federal and state standards as well as prior permit conditions taken to avoid triggering other requirements (e.g., PSD/major NSR).</p> <p>A variety of specific air emissions limits contained in the Title V permit are derived from conditions in past permits that were taken to prevent federal Prevention of Significant Deterioration (PSD) requirements from applying to the facility. For example, in order to avoid PSD review, the 2/7/03 permit for the new chemical recovery system using gasification included a throughput limit for the pulp washers (PULP03).</p> <p>Each emissions limit in the Title V permit references the State regulation and/or the air permit and condition number that is the source of the limit. The Statement of Legal and Factual Basis document that accompanies the Title V permit describes the regulatory and/or permit source for each emissions limit (including those that have been streamlined).</p> <p>For criteria pollutants, standards exist to prescribe certain technology standards, as well as to maintain pollutant emissions at levels below established ambient limits.</p> <p>Water emissions: NPDS permit limits are based on the more stringent of either the Federal Effluent Guidelines for Pulp, Paper, and Paperboard Point Source Categories (40 CFR 430), Subpart F - promulgated under CWA Section 402, or federal (40 CFR 131) or state , water quality standards or criteria that are designed to prtect designated uses of surface waters .</p> <p><u>Effluent Limitations for Best Practicable control Technology (BPT) (pollutant; 1-day max; 30 day average):</u> Sodium Base Mills (Kg/kgg (or lbs per 1,000) of product): BOD5: 8.7; 4.35 TSS: 11.0; 5.5 pH: within the range of 6 to 9</p> <p><u>Effluent Limitations for Best Available Technology (BAT) (1-day max):</u> Pentachlorophenol 0.0012 (Kg/kgg (or lbs per 1,000) of product); (0.029)(10.3)/wastewater discharged in kgal per ton of product Tetrachlorophenol 0.00043 (Kg/kgg (or lbs per 1,000) of product); (0.010)(10.3)/wastewater discharged in kgal per ton of product</p> <p>[DBeck: The UK/EU system requires inventories of emissions, sources, relevant benchmarks, etc. No similar requirements listed under US reqts. - nonetheless, from the air side 40 CFR part 70 requires sources in their applications to list emissions sources, give estimates of emissions, and determine applicable requirements. There may be something similar on water/waste sides.]</p>	<p>The Title V air operating permit contains a list of all emissions units in Permit Section II (pages 2-9) which includes the following information:</p> <ul style="list-style-type: none">- emission unit ID and stack ID- emission unit description (including date installed)- size/rated capacity- pollution control device description and ID- pollutant controlled- applicable permit date <p>Emission limits for specific pollutants are described for each major emissions source/equipment.</p> <ul style="list-style-type: none">- Boilers: PM, SO2, and other pollutant emissions (and fuel content) limits for each boiler (No. 4, 5 & 6) are described in Permit Section III and below under relevant pollutant;- Pulp Mill Equipment: HAP and other pollutant emissions limits for pulp mill equipment are described in Permit Section IV.A and below under relevant pollutant;- Chemical Recovery Equipment: PM, SO2, NOx, CO, HAP, and other pollutant emissions limits for chemical recovery equipment are described in Permit Section IV.B and C and below under relevant pollutant;- Medium Mill Equipment: Opacity limits are described in Permit Section IV.D;- Linerboard Mill Equipment: PM, VOC, and other pollutant emissions limits for linerboard mill equipment are described in Permit Section IV.E and below under relevant pollutant; and- Wastewater System Equipment: Opacity limits are described in Permit Section IV.F. <p>The Title V air permit contains a list of all insignificant emissions units in Permit Section IX (pages 64-65) which includes the following information:</p> <ul style="list-style-type: none">- emission unit ID- emission unit description- citation (referencing 9 VAC 5-80-720)- pollutants emitted (referencing 9 VAC 5-80-720B)- rated capacity (referencing 9 VAC 5-80-720C)

Requirement	U.S. Requirements	Georgia-Pacific Permit and Other Documents -- Big Island, Virginia
3.2 EMISSION BENCHMARKS 3.2.1 Standards and Obligations	No additional standards beyond those listed under 3.1	The following throughput limits are stated in the permit and have the effect of limiting one or more air pollutants: -The throughput of semi-chemical virgin pulp through the pulp washers (PULP03) shall not exceed 864 oven dry tons per day, calculated daily as the average of each consecutive 30-day period (9 VAC 5-80-110, 9 VAC 5-80-1180, and Condition 10 of 2/7/03 permit). -The new chemical recovery system shall process no more than 73,000 Tons of black liquor solids per year, calculated monthly as the sum of each consecutive 12 month period (9 VAC 5-80-110, 9 VAC 5-80-1180, and Condition 9 of 2/7/03 permit). -The yearly usage of lime shall not exceed 20,000 tons, calculated monthly as the sum of each consecutive twelve (12) month period. (9 VAC 5-80-110, and Condition 3 of 7/10/02 Permit)
2 Units for Benchmarks and ing Limits in Permits	<i>Need to add list of units for air and water benchmarks/limits - generally includes concentration and mass based units for water discharge limits, and mass based for air.</i>	N/A
3 Statistical Basis for chmarks and Limits in nits	<i>Needs further research</i>	N/A
4 Reference Conditions for ases to Air	N/A	N/A
BOD	BOD5 limitations based on Federal Effluent Guidelines (40 CFR 430) .	<u>BOD5 effluent limitations:</u> 2105 kg/day (average monthly concentration) 4210 kg/day (average daily concentration). The permit limitations for BOD5 limits are based on a comparison of the water quality requirements with the applicable federal effluent guidelines (Outfall 003); 30 mg/L (monthly average) and 45 mg/L (daily average) (40 CFR Part 133) (Outfall 301).
COD	No COD benchmark value in effluent guidelines 40 CFR 430 Subpart F. Storm water limits for COD based on 9 VAC 25-151-10.	COD storm water limits: 120 mg/L - based on the DEQ benchmark. (9 VAC 25-151-10)

Requirement	U.S. Requirements	Georgia-Pacific Permit and Other Documents -- Big Island, Virginia
3.5 HALOGENS	40 CFR 122.41 Conditions Applicable to All Permits.	<p>Total residual chlorine (TRC): 0.12 mg/L (monthly average) 0.024 mg/L (daily average) for outflows 001 & 002</p> <p>Permittee is required to monitor the TRC concentration after chlorine contact.</p> <p>Due to the proximity of a public water supply intake downstream, the Virginia Department of Health requested that the minimum TRC after contact be 1.5 mg/L (Outfall 301).</p>
3.6 HEAVY METALS	Storm water limits for copper, zinc, and iron based on 9 VAC 25-151-10.	<p>Concentrations of trace pollutants (i.e., barium, cadmium, chromium, mercury, manganese, nickel, lead, zinc, and chlorides) in the wastepaper pellets to be combusted in boiler #5 must not exceed certain limits.</p> <p>Concentration limit for storm water is 26 mg/L for dissolved Copper (based on storm water criteria), 230 mg/L for dissolved Zinc (based on storm water criteria), and 0.40 mg/L total recoverable Iron (based on DEQ benchmark) (9 VAC 25-151-10).</p>
NITROGEN OXIDES	<p>NOx emission limits are generally based on State requirements that ensure compliance with the NAAQS and Virginia's SIP. The No. 6 Boiler is subject to NSPS Subpart Db standard of NOx which is 0.1 lb/MMBtu. Compliance with the NOx emissions in the Title V permit, which are base on BACT (ie., 0.0315 for natural gas, 0.0885 for diesel fuel, and 0.0434 lb/MMBtu for propane), ensures compliance with the NSPS standard.</p> <p>The State of Virginia's NOx Budget Trading Program (9 VAC 5 Chapter 140) for this facility involves only the No. 4 and No. 6 Power Boilers because each of them has a fossil fuel burning input rated capacity exceeding 250 million Btu/hr. The No. 5 Power Boiler is not in the NOx Budget Trading Program because its input rated capacity is less than 250 million Btu/hr when burning fossil fuel, even though its capacity exceeds 250 million Btu/hr when burning certain non-fossil fuels.</p>	<p>VA's NOx budget trading program applies to #4 and #6 boilers due to fossil fuel burning input rated capacity > 250 million Btu/hr (specific trading program requirements included in section XII of permit).</p> <p>Daily NOx emission calculations provided for boilers #4, 5, and 6 to ensure no exceedences in total annual emissions limits.</p> <p>No. 5 Boiler emissions must not exceed 139.3 (lbs/hr) or 610.1 (tons/year) (9 VAC 5-80-110, 9 VAC 5-50-260, 9 VAC 5-50-180, and Condition 18 of 11/21/96 Permit).</p> <p>No. 6 Boiler emissions must not exceed 0.0315 lbs/10^6 btu and 8.97 lbs/hr (when firing natural gas); 0.0885 lbs/10^6 btu and 24.39 lbs/hr (when firing deisel fuel); and 0.0434 lbs/10^6 btu and 12.11 lbs/hr (when firing propane). (9 VAC 5-50-260 A) (as NO2) (30-day roll. avg.) (40 CFR 60.44b). Annual emissions must not exceed 42.65 (tons/yr) (as NO2) (9 VAC 5-80-110, 9 VAC 5-50-260 A and 9 VAC 5-60-320 and Condition 20 of 6/30/95 Permit, as amended 2/26/03).</p> <p>Chemical recovery system emissions not to exceed 0.2 lbs/MMBtu or 89.8 tons/yr (9 VAC 5-50-260) (as NO2 30-day roll. Ave.) (40 CFR 60.44b).</p>
NUTRIENTS (Phosphates Nitrates)	Storm water limits for Nitrate plus Nitrite based on 9 VAC 25-151-10.	Concentration limit for storm water is 1.76 mg/L for Nitrate plus Nitrite - based on the NAPD Program Mean (9 VAC 25-151-10).

Requirement	U.S. Requirements	Georgia-Pacific Permit and Other Documents -- Big Island, Virginia
3.9 PARTICULATE AND SUSPENDED SOLIDS	<p>PM air emissions limits are generally based on State requirements that ensure compliance with the NAAQS and Virginia's SIP. The smelters and smelt dissolving tank (chemical recovery system), each have emission limits for PM based on 9 VAC 5 Chapter 40 Part 11, Article 13, Emission Standards for Kraft Pulp Mills. PM limits on combustion sources are primarily driven by state requirements which are designed to assure compliance with the SIP. NSPS Subpart Db (applicable to Boiler No. 6) for boilers having a heat input capacity of 29 and 73 MW (100 and 250 MMBtu/hr) limits PM emissions at varying rates depending on fuel and unit type. Applicable PM limits are defined in the permit (see GP Permit column for specific limits).</p> <p>NSPS Subpart BB (40 CFR 60) - kraft pulp mills - regulates PM and Total Reduced Sulfur (TRS) air emissions. Contains PM and TRS emissions standards for different types of pulp mills process equipment.</p> <p>TSS limitations based on Federal effluent guidelines (40 CFR 430). Numeric effluent limitation guidelines for coal pile runoff associated with the steam electric generating facilities (40 CFR 423.12).</p>	<p><u>Particulate Matter:</u> 0.21 lb/MMBtu using multicyclone and ESP controls (9 VAC 5-80-110, 9 VAC 5-40-900, and 9 VAC 5-40-930) (No. 4 boiler); 33.8 lbs/hr and 165.8 tons/yr (No. 5 boiler) (9 VAC 5-80-110, 9 VAC 5-50-260, 9 VAC 5-50-180, and Condition 18 of 11/21/96 Permit); 0.85 lbs/hr (natural gas), 4.14 lbs/hr (diesel fuel), and 0.81 lbs/hr (propane) (9 VAC 5-50-260 A), annual emissions limit 5.15 tons/yr (9 VAC 5-80-110, 9 VAC 5-50-260 A and 9 VAC 5-60-320 and Condition 20 of 6/30/95 Permit, as amended 2/26/03)(No. 6 boiler).</p> <p><u>Visible Emissions:</u> 20% opacity except for one 6-minute period during any one hour in which opacity cannot exceed 60% (9 VAC 5-80-110 and 9 VAC 5-40-80) (No. 4 boiler); ESP exhaust stacks (E26 and E27) 20% opacity as determined by EPA Method 9 (reference: 40 CFR 60, Appendix A) (No. 5 boiler); 10% opacity except for one six-minute period per hour which shall not exceed 20% opacity. Visible emission evaluations shall be in accordance with EPA Method 9 (reference 40 CFR 60, Appendix A) (No. 6 boiler); 20% opacity except during one six-minute period in any one hour in which visible emissions shall not exceed 60% opacity (Pulp mill equipment except the New Blow Tank portion of the Digester system (PULP02); 20% opacity except during one six-minute period in any one hour in which visible emissions shall not exceed 60% opacity (chemical recovery system except Recovery Smelter No. 1 and 9 VAC 5-80-110) (New Blow Tank); 20% opacity except during one six-minute period in any one hour in which visible emissions shall not exceed 60% opacity (chemical recovery system except Recovery Smelter No. 1 (REC01) and the Recovery Smelter No. 2 (REC02)); 35% opacity. (9 VAC 5-40-1710 and 9 VAC 5-80-110) (Recovery Smelter No. 1 (REC01) and the Recovery Smelter No. 2 (REC02)); 10% opacity except during one six-minute period in any one hour in which visible emissions shall not exceed 20% opacity as determined by EPA Method 9 (reference 40 CFR 60, Appendix A) (new chemical recovery system stack); 20% opacity except during one six-minute period in any one hour in which visible emissions shall not exceed 60% opacity (medium mill equipment); 20% opacity, except for one six-minute period in any one hour of not more than 30% opacity (linerboard mill equipment excpet starch silo); 5% opacity (starch silo) (9 VAC 5-80-110, 9 VAC 5-50-80, 9 VAC 5-50-260 A, 9 VAC 5-50- 20, and Condition 22 of 6/30/95 permit, as amended 2/26/03).</p> <p>Emissions must not exceed 3 lbs/equivalent ton of dried air pulp (REC01 and REC02) or 0.75 lbs/equivalent ton of dried air pulp (REC06). (9 VAC 5-80-110 and 9 VAC 5-40-1680). Emissions limits for chemical recovery sytem with gasification: 0.015 gr/dscf @ 8% O2 16.6 tons/yr (9 VAC 5-50-260).</p> <p><u>Total Suspended Solids:</u> 5,838 kg/day (monthly average) 11,547 kg/day (daily average).</p> <p>The permit limitations for TSS limits are based on requirements of the applicable federal effluent guidelines (40 CFR 430) (Outfall 003); 4.5 kg/day (monthly average) and 6.8 kg/day (daily average) (40 CFR Part 133) (Outfall 301);</p> <p>The TSS concentration limit for storm water is 100 mg/L - based on the DEQ benchmark (9 VAC 25-151-10).</p>
	<p>SO2 air emissions limits are generally based on State requirements that ensure compliance with the NAAQS and Virginia's SIP.</p> <p>The SO2 emission limit for Boiler No.4 is based on the regulatory standard for existing fuel burning equipment (i.e., 2.64K). Using AP-42 emission factors, this limit is approximately equal to coal sulfur content of 1.75 percent. For Boiler No. 5, SO2 limits are the worst case fueling scenarios for the boiler firing at capacity, using AP-42 factors. For Boiler No. 6, short term emissions limits are based on the boiler firing at capacity, using AP-42 factors. The permit also contains a fuel sulfur content limit. NSPS Subpart Db (applicable to Boiler No. 6) for boilers having a heat input capacity of 29 and 73 MW (100 and 250 MMBtu/hr) limits SO2 emissions to: 87 ng/J (0.20 lb/MMBtu).</p> <p>For the new chemical recovery system, SO2 emissions limit is based on the system processing at capacity, and using vendor guaranteed emission factors.D63</p>	<p>Calculations provided to determine SO2 emissions do not exceed limits required for boilers #4, 5, and 6.</p> <p>The SO2 emission limit is based on the regulatory standard for existing fuel burning equipment. Emissions Limits for SO2 No. 4 Boiler: 750 lbs/hr (9 VAC 5-80-110, 9 VAC 5-40-900, and 9 VAC 5-40-930) No. 5 Boiler: 485.1 lbs/hr; 2124.6 tons/yr (9 VAC 5-80-110, 9 VAC 5-50-260, 9 VAC 5-50-180, and Condition 18 of 11/21/96 Permit) No. 6 Boiler: 14.4 lbs/hr (diesel fuel); 4.96 lbs/hr (propane fuel); 16.97 tons/yr (annual emissions) (9 VAC 5-50-260 A). Chemical Recovery Unit using Gasification: 9 ppmvd @ 8% O2 - 10.3 tons/yr (9 VAC 5-50-260)</p> <p>Rationale for No. 4 Boiler: The SO2 emission limit is based on the regulatory standard for existing fuel burning equipment, (ie., 2.64K). For the No. 4 boiler, using the current AP-42 emission factor, this limit is approximately equal to a coal sulfur content of 1.75 percent. The reported sulfur content for the coal used at Big Island is 1 percent.</p> <p>Rationale for No. 5 Boiler: The limits for the Criteria Pollutants [including SO2] are the worst case fueling scenarios for the boiler firing at capacity, and using emission factors from AP-42, the EPA document "Burning Tires for Fuel and Tire Pyrolysis," and vendor guarantees.</p> <p>Rational for New Chemical Recovery System: For SO2, the limits are based on the system processing at capacity, and using vendor guaranteed emission factors. The emission limits for the new chemical recovery system using gasification were conservatively calculated based on state-of-the -art, conventional technology. As such, these emission limits are considered higher than would be expected in actual operation, and therefore, the margin of compliance is considered sufficient to assure compliance with these emission limits. Furthermore, the pre-construction permit includes a requirement to reduce the allowable emissions from the gasifier system as indicated by a series of required stack tests. The reduced emission limits will be included in the Title V permit in the future and periodic monitoring requirements will be reconsidered at that time.</p> <p>Contaminants of the used oil combusted in No. 5 Boiler shall not exceed the following limits: Sulfur 0.5 percent by weight (9 VAC 5-80-110, 9 VAC 5-170- 160, and Condition 11 of 11/21/96 permit)The maximum sulfur content of the diesel fuel to be burned in No. 6 Boiler shall not exceed 0.05 percent by weight per shipment. (9 VAC 5-80-110, 9 VAC 5-80-1180, 9 VAC 5-50-400 and Condition 9 of 6/30/95 permit, as amended 2/26/03).</p>
	<p>VOC air emissions limits are generally based on State requirements that ensure compliance with the NAAQS and Virginia's SIP.</p> <p>NSPS Subpart Kb (40 CFR 60) - liquid storage vessels - regulates VOC emissions from spent liquor storage vessels used at pulp mills. Includes venting, roof, and other requirements.</p> <p>The MACT II places limits on total hydrocarbon emissions (THC) related to smelter operations. MACT II contains gaseous organic HAP standards for existing and new semichemical combustion units using total hydrocarbon (THC) as a surrogate for gaseous organic HAP. All stand-alone semichemical pulp mills with existing or new chemical recovery combustion units must reduce gaseous organic HAP emissions (as measured by THC reported as carbon) from these units by 90 percent, or meet a gaseous organic HAP emission limit (as measured by THC reported as carbon) of 1.49 kg/Mg (2.97 lb/ton) of BLS fired.</p>	<p>No. 5 Boiler emissions must not exceed 56.4 lbs/hr or 246.9 (tons/year) (9 VAC 5-80-110, 9 VAC 5-50-260, 9 VAC 5-50-180, and Condition 18 of 11/21/96 Permit).</p> <p>No. 6 Boiler emissions must not exceed 0.80 (VOCs) or 0.40 lbs/hr (formaldehyde) (when firing natural gas); 1.27 (VOCs) or 1.6 (formaldehyde) lbs/hr (when firing diesel fuel); and 0.78 lbs/hr (when firing propane) (9 VAC 5-50-260 A). Annual emissions must not exceed 3.49 (VOCs) or 1.38 (formaldehyde) tons/yr (9 VAC 5-80-110, 9 VAC 5-50-260 A and 9 VAC 5-60-320 and Condition 20 of 6/30/95 Permit, as amended 2/26/03).</p> <p>Linerboard Mill equipment: Not to exceed 9.16 lbs/hr or 35.81 tons/yr (9 VAC 5-80-110, 9 VAC 5-50-260 A and Condition 16 of 6/30/95 Permit, as amended 2/26/03).</p> <p>MACT II emission limit for chemical recovery system is 2.97 lbs/tons BLS and 108.4 tons/year (9 VAC 5-50-260 and 40 CFR 63.862(c)(2).</p>

Requirement	U.S. Requirements	Georgia-Pacific Permit and Other Documents -- Big Island, Virginia
4 IMPACT 4.1 ASSESSMENT OF THE IMPACT OF EMISSIONS ON THE ENVIRONMENT	N/A	N/A
4.2 THE WASTE MANAGEMENT LICENSING REGULATIONS	N/A	N/A
THE HABITAT SULATIONS	N/A	N/A
	<p>Boilers and Process Equipment: 40 CFR 60.49b - Reporting and Record Keeping Requirements 40 CRF 60.7 - Notification and Record Keeping</p> <p>Pulp Mill Equipment & Chemical Recovery Equipment: 40 CFR 60, Subpart Kb, 16b - Monitoring of Operations 40 CFR 63, Subpart S - National Emissions Standards for Hazardous Air Pollutants from the Pulp and Paper Industry</p> <p>MACT II: 40 CFR 63, Subpart MM, 866a - Recordkeeping requirements</p>	<p><u>Recordkeeping and Reporting.</u> 1. All records of monitoring information maintained to demonstrate compliance with the terms and conditions of this permit shall contain, where applicable, the following: a. The date, place as defined in the permit, and time of sampling or measurements. b. The date(s) analyses were performed. c. The company or entity that performed the analyses. d. The analytical techniques or methods used. e. The results of such analyses. f. The operating conditions existing at the time of sampling or measurement. (9 VAC 5-80-110 F) 2. Records of all monitoring data and support information shall be retained for at least five years from the date of the monitoring sample, measurement, report, or application. Support information includes all calibration and maintenance records and all original strip-chart recordings for continuous monitoring instrumentation, and copies of all reports required by the permit. (9 VAC 5-80-110 F) 3. The permittee shall submit the results of monitoring contained in any applicable requirement to DEQ no later than March 1 and September 1 of each calendar year. This report must be signed by a responsible official, consistent with 9 VAC 5-80-80 G, and shall include: a. The time period included in the report. The time periods to be addressed are January 1 to June 30 and July 1 to December 31. b. All deviations from permit requirements. For purposes of this permit, deviations include, but are not limited to: (1) Exceedance of emissions limitations or operational restrictions; (2) Excursions from control device operating parameter requirements, as documented by continuous emission monitoring, periodic monitoring, or compliance assurance monitoring which indicates an exceedance of emission limitations or operational restrictions; or, (3) Failure to meet monitoring, recordkeeping, or reporting requirements contained in this permit. c. If there were no deviations from permit conditions during the time period, the permittee shall include a statement in the report that “no deviations from permit requirements occurred during this semi-annual reporting period.” (9 VAC 5-80-110 F)</p> <p><u>Permit Deviation Reporting</u> The permittee shall notify the Director after a deviation is discovered from permit requirements which may cause excess emissions for more than one hour, including those attributable to upset conditions as may be defined in this permit. In addition, within 14 days of the discovery, the permittee shall provide a written statement explaining the problem, any corrective actions or preventative measures taken, and the estimated duration of the permit deviation. Owners subject to the requirements of 9 VAC 5-40-50 C and 9 VAC 5-50-50 C are not required to provide the written statement prescribed in this paragraph for facilities subject to the monitoring requirements of 9 VAC 5-40-40 and 9 VAC 5-50-40. The occurrence should also be reported in the next semi-annual compliance monitoring report pursuant to General Condition XI.C.3 of this permit. (9 VAC 5-80-110 F.2 and 9 VAC 5-80-250)</p>

Requirement	U.S. Requirements	Georgia-Pacific Permit and Other Documents -- Big Island, Virginia
RECORDS, REPORTING, AND NOTIFICATION		<p><u>Failure/Malfunction Reporting</u></p> <p>In the event that any affected facility or related air pollution control equipment fails or malfunctions in such a manner that may cause excess emissions for more than one hour, the owner shall, as soon as practicable but no later than four daytime business hours after such failure or malfunction is discovered, notify the Director, West Central Region by facsimile transmission, telephone or telegraph of such failure or malfunction and shall within two weeks provide a written statement giving all pertinent facts, including the estimated duration of the breakdown. Owners subject to the requirements of 9 VAC 5- 40-50 C and 9 VAC 5-50-50 C are not required to provide the written statement prescribed in this paragraph for facilities subject to the monitoring requirements of 9 VAC 5-40-40 and 9 VAC 5-50-40. When the condition causing the failure or malfunction has been corrected and the equipment is again in operation, the owner shall notify the Director, West Central Region. (9 VAC 5-20-180 C)</p> <p>1. The emission units that have continuous monitors subject to 9 VAC 5-40-50 C and 9 VAC 5-50-50 C are not subject to the two week written notification.</p> <p>2. The emission units subject to the reporting and the procedure requirements of 9 VAC 5-40-50 C and the procedures of 9 VAC 5-50-50 C are listed below:</p> <p>a. No. 4 Boiler,</p> <p>b. No. 5 Boiler,</p> <p>c. No. 6 Boiler, and</p> <p>d. The Chemical Recovery Equipment using Gasification</p> <p>3. Each owner required to install a continuous monitoring system subject to 9 VAC 5-40-41 or 9 VAC 5-50-410 shall submit a written report of excess emissions (as defined in the applicable emission standard) to the board for every calendar semiannual period. All semiannual reports shall be postmarked by the 30th day following the end of each calendar semiannual period and shall include the following information:</p> <p>a. The magnitude of excess emissions computed in accordance with 40 CFR 60.13(h) or 9 VAC 5-40-41 B 6, any conversion factors used, and the date and time of commencement and completion of each period of excess emissions;</p> <p>b. Specific identification of each period of excess emissions that occurs during startups, shutdowns, and malfunctions of the source. The nature and cause of any malfunction (if known), the corrective action taken or preventative measures adopted;</p> <p>c. The date and time identifying each period during which the continuous monitoring system was inoperative except for zero and span checks and the nature of the system repairs or adjustments; and</p> <p>d. When no excess emissions have occurred or the continuous monitoring systems have not been inoperative, repaired or adjusted, such information shall be stated in the report.</p> <p>4. All emission units not subject to 9 VAC 5-40-50 C and 9 VAC 5-50-50 C must make written reports within 14 days of the malfunction occurrence. (9 VAC 5-20-180 C, 9 VAC 5-40-50, and 9 VAC 5-50-50)</p> <p><u>Notice of Planned Changes</u></p> <p>1. The permittee shall give notice to the Department as soon as possible of any planned physical alterations or additions to the permitted facility</p> <p>2. The permittee shall give advance notice to the Department of any planned changes in the permitted facility or activity which may result in noncompliance with permit requirements.</p>
RBON MONOXIDE	<i>Need to research further</i>	<p><u>Permit Limits for CO</u></p> <p>No. 5 Boiler: 161.1 (lbs/hr); 705.5 (tons/yr) (9 VAC 5-80-110, 9 VAC 5-50-260, 9 VAC 5-50-180, and Condition 18 of 11/21/96 Permit)</p> <p>No. 6 Boiler: 15.42 (lbs/hr) when firing natural gas or diesel fuel; 15.40 (lbs/hr) when firing propane (9 VAC 5-50-260 A); Total annual emissions must not exceed 67.53 (tons/yr) (9 VAC 5-80-110, 9 VAC 5-50-260 A and 9 VAC 5-60-320 and Condition 20 of 6/30/95 Permit, as amended 2/26/03)</p> <p>Chemical Recovery System: 300 ppmvd @ 8% O2; 146.2 tons/yr (9 VAC 5-50-260)</p>
XIN	<i>Need to research further</i>	N/A
itional U.S. Requirements	<p>Toxic Release Inventory (TRI) (Emergency Planning and Community Right to Know Act, Section 313) requires facilities to report on over 600 toxic chemicals and chemical categories, and provides information on toxic chemical use, recycling, energy recovery, treatment and disposal, and pollution prevention. Facilities are required to submit annual reports on the amount of toxic chemicals on the reporting list that are released into the environment, both routinely and as the result of accidents.</p> <p>40 CFR 430 contains limitations for the following water pollutants that are not regulated under the UK technical guidance: pH, pentachlorophenol, trichlorophenol. The permit puts forth limits for pH.</p>	<p>Additional Air Pollutants with Limits: H2S</p> <p>Additional Water Pollutants with Limits: pH (40 CFR 430), Flow, Color (9 VAC 25-26-20 A), Water Temperature (Section 316(a) of the Clean Water Act and 9 VAC 25-260-20 B5), Whole Effluent Toxicity (9 VAC 25-31-220D) (In accordance with 9 VAC 25-31-250 A3, a compliance schedule has been added to the permit as Part I.C to allow the permittee four years to comply with the whole effluent toxicity limitation for outfall 003.)</p> <p>In 2004, the Big Island Mill reported on the following TRI chemicals: acetaldehyde, ammonia, benzene, hydrochloric acid (acid aerosols), manganese compounds, methanol, nitrate compounds, and sulfuric acid (acid aerosols).</p> <p>If permittee handles or emits one or more Class I or II substances per Title VI (Stratospheric Ozone Protection), permittee must comply with 40 CFR 82, Subparts A-F.</p>
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Appendix I
Permit Matri:

The following table is meant to

Requirement	US Voluntary Programs	Analysis Comments
2. TECHNIQUES FOR POLLUTION CONTROL		
Management Techniques	<p>Performance Track (Ptrack): Currently more than 15 paper mills in this voluntary program. Members must have an environmental management system (EMS) in place for at least one full cycle that has been assessed by an independent party. Facility is also expected to conduct regular EMS self-assessments and compliance audits.</p> <p>Virginia Environmental Excellence Program (VEEP): One paper mill (Int'l Paper) is a member of the highest tier of this voluntary program. Members must have a fully implemented EMS and are expected to conduct regular EMS self-assessments and compliance audits.</p> <p>The U.S. EPA Sector Strategies Program is working in partnership with the American Forest & Paper Association (AF&PA) to promote environmental management systems (EMS), overcome regulatory barriers to performance improvement, and measure environmental progress in the forest products industry.</p>	<p>DBeck: There are no formal US requirements for EMSs comparable to European system. EMS development in US primarily related to company policy, commerce expectations, and voluntary programs.</p> <p>GFaison: In general, from a solid and hazardous waste perspective, the biggest difference is the ability of the permit to regulate the choice/use of raw materials and procedures for management of materials during the industrial process. Many of these activities are undertaken through incorporation of the ISO 14001 EMS into the permits. In contrast, US standards for solid and hazardous wastes apply only to the materials such as sludges, garbage, industrial wastes and other materials after they have been discarded and can no longer be used. Another major difference is the extensive requirements imposed on a facility through regulation but not through a permit. The GP facility is a small quantity generator of hazardous waste under Federal and state requirements. No permits are required for SQGs, but facilities must obtain an ID number and submit biennial reports. In the UK, such standards may be imposed through the integrated permit. From the St. Regis permit received, the facility does not appear to manage any hazardous waste (Question 1).</p> <p>MCrooks: A major difference between the U.K. and U.S. is the concept of Techniques used by U.K.. In the U.S., we focus on technical answers and apply Best Available Control Technology to facilities to control their wastewater. In the U.K., their environmental management system is part of the permit. Recently here in Washington we have allowed the mills that have been certified in ISO 14001 to use their EMS in place of the requirement in thier permit to do annual pollution prevention (P2) planning. The mills are required to do P2, but the details of the P2 effort is voluntary and varies widely from mill to mill. If the U.S. mills find a benefit of adding their EMS to be included in the permit there could be possiblity of growing this P2 activity into something more in a future EPA integrated permit. In the U.S. permits, we have general conditions that require certified lab technicians, facilities be maintained, and log books be available for inspectors. We do not require mill staff to have a permit available for their use or be knowledgeable of the permit because the only way to stay in compliance with your permit is if you have staff that know the permit requirements in the first place.</p>
MATERIALS INPUTS		<p>DBeck: There are no formal US requirements to inventory, justify use of, and seek more benign raw materials, although commerce expectations, voluntary programs, public pressure, worker safety, and other factors will influence corporate behavior.</p> <p>MCrooks: Not only are there no regulatory rules that address raw materials, the mills in the Pacific Northwest have been adamant only they know best how to run their business and regulatory agencies have no place getting involved. However, there is one exception I can think of, and that is slimicides. The mills must report their use of slimicides. The reason for this is that the slimicide could have a negative impact on their wastewater treatment facility. So, in the future EPA could base new rule making on raw materials that have the potential to impact the wastewater treatment system and then some raw materials in the process could be directly addressed in the permit. I don't have any examples for the pulping part of the process, but there could be things in the bleach plant that might get addressed. Both the U.K. mill and the Virginia mill do not bleach their pulp, so this would not apply to them.</p>
	<p>Ptrack and VEEP members can make commitments to improved material use (either reduced use of hazardous or raw materials, or increased use of recycled materials).</p>	<p>MCrooks: It is difficult to go back and forth between the permit and permit application. Table 2.2.1 in the application is officically part of the permit and lists the raw materials used at the St. Regis mill. The list is more than a list of materials. The list defines the typical usage rate in kilograms per metric ton of net paper, and also indicates the point in the mill the material is applied. The United States has nothing comparable. I have had discussions with a mill here in Washingotn a few years ago about some of their raw materials and received the usual industry comment that it was not the regulator's place to be involved in how a mill opeates its facility as long as the facility is in compliance with their permit. With the current laws, regulations, orders and permits, the only place where I could see any raw materials being addressed would be under the pollution prevention program. The mills are required to address pollution prevention, but it is pretty wide open how that happens.</p>

Requirement	US Voluntary Programs	Analysis Comments
2.2.1 Raw Materials Selection		
2 Waste Minimization	33333	GFaison: As a Small Quantity Generator, GP is required to have a program to reduce the volume and toxicity of hazardous waste. At the St. Regis plant, waste minimization, is undertaken through the EMS. In addition, the state of Virginia requires solid waste recycling by businesses to meet prescribed county and state wide recycling rates (Question 3).

Requirement	US Voluntary Programs	Analysis Comments
2.2.3 Water Use	<p>Ptrack and VEEP members can make commitments to reducing water use.</p>	<p>DBeck: What is the significance of the CWA requirements? Do they limit water use?</p> <p>MCrooks: The United States does not have any limits on water use. For some time now U.S. environmental agencies have recommended efficient use of water in pulp and paper mills. Many mills have had success in reducing the amount of water used to produce a ton of pulp. A side effect of less water in the wastewater treatment system has sometimes shown an increase in the temperature of the treated wastewater when it is discharged into the receiving water. This is important in freshwater rivers with salmon runs where high water temperature reduces salmon survival. The U.S. does not have temperature limits, but here in Washington we are looking at doing a total mass daily loading (TMDL) study to set daily loadings to permittees on the Columbia River. The TMDL essentially would set a temperature limit for the discharges to the temperature impacted portions of the Columbia River. A temperature limit would directly affect water usage at the facility, but still would not set a water usage limit in the permit.</p>
MAIN ACTIVITIES AND STATEMENT	<p>VEEP members are required to have a fully implemented pollution prevention program.</p> <p>Best Workplace for Commuters (BWC): Companies joining this voluntary program sponsored by EPA and DOT commit to providing commuter benefit packages for their employees that are designed to reduce single occupant vehicle commuting and, therefore, mobile source emissions. Georgia-Pacific was a BWC company in 2005.</p>	<p>DBeck: Regarding air, there are no US requirements to provide all of information listed in UK technical guidance. However, for facilities subject to title V, permit application requirements ask for enough information to identify emission sources, the amount of emissions, applicable requirements for the emission sources, and the means to comply with those requirements.</p> <p>MCrooks: Activities at the St. Regis mill are detailed in the application and these processes are incorporated into the permit by reference. In the U.S., pulp mills are classified into categories with each category having a federal effluent guideline to follow for developing water permit limits. In the U.S. there is no inclusion in the permit of operating technics. In the U.K. the operating technics are listed and if changed then the permit would need to be modified. In the U.S. if a mill changed from a sulfite pulp mill to a kraft pulp mill, the facility would fall under a different federal effluent guideline and the permit would have to be modified. In effect the two countries' permits are different but a change in operation would result with the same consequence in that the water side of the permit in the U.K. and the U.S. wastewater permit would have to</p>

Requirement	US Voluntary Programs	Analysis Comments
1 Preparing Virgin Fiber		MCrooks: It is difficult to go back and forth between the permit and permit application. Table 2.2.1 in the application is officially part of the permit and lists the raw materials used at the St. Regis mill. The list is more than a list of materials. The permit is definitive word on how to operate the facility. The application referred to in the permit even describes how a raw material is transported onto the mill site. This level of detail appears to be unnecessary. If one wanted to persuade the mill to use an alternative transportation method, perhaps a mill wide energy balance would be an option and provide some flexibility. Still, this U.K. practice is not part of the U.S. process.
1.2 Chipping		MCrooks: Not included in U.S. permits.
2 Preparing Recovered Fiber		MCrooks: The permit lists only the activities that take place at the St. Regis Mill, which it should. So even though the permit refers back to pages 15 to 39 of the application, items such as 2.3.2 Preparing Recovered Fiber is not noted in the permit itself.
3 Mechanical Pulping		
4 Chemical Pulping		

Requirement	US Voluntary Programs	Analysis Comments
5 NSSC Pulping and Chemical Recovery		<p>DBeck: Generally, there are no requirements to justify “BAT” in the US system, just to comply with applicable standards. An exception in the air program is that the determination of best available control technology under New Source Review is case-by-case and somewhat “negotiable”.</p> <p>MCrooks: I agree with the UK technical guidance listed in the matrix. Secondary wastewater treatment is the best option for the St. Regis mill. In the Pacific Northwest, secondary wastewater treatment has been very successful in knocking down the organic loading discharged to the receiving water.</p>

Requirement	US Voluntary Programs	Analysis Comments
2.3.6 Other Chemical Pulping Processes		
2.3.7 Bleaching		
2.3.8 Papermaking		<p>DBeck: Appears to be no direct US requirement comparable to UK/EU system to “optimize” papermaking to reduce fiber losses.</p> <p>MCrooks: The US mills use efficiency in paper making even though the mills are not required to in their permits. The US includes description of the mill in the fact sheets. Besides the fact sheet, there really isn't anything in the US permits that gets into the mill's internal papermaking process. Some internal processes have been affected by end of pipe requirements, such as chlorinated organics driving changes in the bleach plant. This would not be applicable to a comparison of the St. Regis mill because that mill did not bleach their pulp.</p>
2.3.9 Coating		
	<p>Prack and VEEP members can make commitments to reducing air emissions.</p> <p>Climate Leaders: Members make commitments to reduce greenhouse gas emissions. One paper mill (Int'l Paper) has committed to reducing emissions by 15% from 2000 to 2010.</p> <p>Climate Vision: The American Forest & Paper Association (AF&PA) supports the President's initiative to address climate change through enhanced research in technology and science, incentives, and voluntary efforts. The members of AF&PA have undertaken a series of programs through which they are collectively committed to trying to meet the President's intensity reduction goals. These programs include inventorying and reporting on greenhouse gases, actions to enhance sequestration in managed forests and products, development and implementation of improved technologies, efforts to improve energy efficiency, use of cogeneration and increased use of renewable energy, and recycling. Based on preliminary calculations, AF&PA expects that these programs will reduce the forest products industry's greenhouse gas intensity by 12% by 2012 relative to 2000.</p> <p>Combined Heat and Power Partnership (CHP) is a voluntary EPA program that seeks to reduce the environmental impact of power generation by promoting the use of CHP. By installing a CHP system designed to meet the thermal and electrical base loads of a facility, CHP can increase operational efficiency and decrease energy costs, while reducing emissions of greenhouse gases that contribute to climate change. The Partnership works closely with energy users, the CHP industry, state and local governments, and other stakeholders to support the development of new projects and promote their energy, environmental, and economic benefits. Two paper companies (Int'l Paper and Weyerhaeuser) currently participate in the program.</p> <p>Energy Star: This EPA voluntary program encourages businesses to use energy-efficient prodcuts to minimize enetgy waste and reduce greenhouse gas emissions. A number of paper companies have signed on as partners, including: Atlas Paper, Erving Paper, Georgia-Pacific, and Wayerhaeuser.</p> <p>The Green Power Partnership: This EPA program encourages organizations to purchase green power as a way to reduce the air pollution and other environmental impacts associated with conventional electricity use. CTI paper is a participant in this program.</p>	<p>DBeck: Some of the UK/EU system requirements are required by the permit application requirements of part 70 – such as: describing abatement equipment, chemical constituents of emissions, and measures to ensure abatement performance (i.e., monitoring). Others have no US counterpart, such as: describing damage to health, soil, or terrestrial ecosystems; demonstrating appropriate chimney/stack heights to minimize adverse impacts, keeping scrubber emissions hot enough to avoid visible plumes, etc.</p>

Requirement	US Voluntary Programs	Analysis Comments
2.3.10 Abatement of Point Sources of Emissions to Air		

Requirement	US Voluntary Programs	Analysis Comments
11 Abatement of Point Source Emissions to Surface Water and Sewer		<p>DBeck: Unlike the UK emphasis on analysis of BAT, US system requires meeting standards. For example, there are no US mandates to justify not cleaning effluent to a level allowing reuse, identifying toxicity of effluent, identifying techniques to reduce residual toxicity, etc.</p> <p>MCrooks: The St. Regis mill was required to examine their handling of the black liquor and discharge in the improvement plan part of the permit. This approach is not part of the regulatory world in the US. However, back in the 1970's in the US, the pulp mills in the Pacific Northwest were not treating their effluent with secondary treatment prior to discharge. The mills were placed under orders to produce engineering reports to address secondary treatment and then construct those treatment facilities. That US effort resulted in each mill doing a study that led to an engineering report, and the eventual construction of a treatment system. The UK permit did not issue an order, but by putting the plan into the permit the planning effort was a legal requirement of the permit for the St. Regis mill. The effect would have been the same if the mill had not closed. From the materials I have reviewed and the conversation with the British regulatory staff, it is clear that market conditions and the costs of installing secondary wastewater treatment were part of the reason made to close the St. Regis mill. The US regulatory approach does not have an emphasis on Best Available Techniques, but the process both countries' regulatory agencies use appear to produce similar results.</p>
11.2 Water Treatment for Papermaking		<p>MCrooks: In the US, our permits require that suspended solids removed from water treatment not be added back to the effluent discharge for disposal of the solids. I couldn't tell from the UK permit if this would be the case.</p>
11.3 Options for Specific Types		<p>MCrooks: The situation described at the St. Regis mill that the black liquor is too weak to recover is true. The NSSC process pulls out about a third of the organic material that chemical pulping does. So even after using evaporators to prep the black liquor for burning in a recovery boiler, there would be less organic material to burn. Therefore, energy and chemical recovery isn't practical. That again leaves the St. Regis mill with the only option of secondary wastewater treatment, which will only cost money, and not put energy or chemicals back into the pulping process.</p>

Requirement	US Voluntary Programs	Analysis Comments
2.3.12 Control of Fugitive Emissions to Air	<p>Track and VEEP: Members can make commitments to reduced air emissions (including fugitive emissions).</p> <p>EPA's GreenScapes program provides cost-efficient and environmentally friendly solutions for large-scale landscaping. Designed to help preserve natural resources and prevent waste and pollution, GreenScapes encourages companies to make more holistic decisions regarding waste generation and disposal and the associated impacts on land, water, air, and energy use. Companies that commit to undertake two or more greenscape projects can sign up as partners to the program.</p>	

Requirement	US Voluntary Programs	Analysis Comments
2.3.13 Control of Fugitive Emissions to Surface Water, Sewer, and Groundwater	<p>Ptrack and VEEP: Members can make commitments to reduced discharges to water.</p> <p>EPA's GreenScapes program provides cost-efficient and environmentally friendly solutions for large-scale landscaping. Designed to help preserve natural resources and prevent waste and pollution, GreenScapes encourages companies to make more holistic decisions regarding waste generation and disposal and the associated impacts on land, water, air, and energy use. Companies that commit to undertake two or more greenscape projects can sign up as partners to the program.</p>	<p>MCrooks: Our permits here in Washington push to control all contaminater water on the site. So we include stormwater into our NPDES permits. The St. Regis permit includes black liquor BAT analysis, improvement programs, and a detail description of the mill's wastewater and groundwater issues in the permit application, which is incorporated into the permit by reference. The US doesn't have the UK control details of fugitive discharges to water, sewer, and groundwater. In the past here in Washington, the state environmental agency has required the mills to pave and sewer process areas. The only groundwater monitoring program we have in Washington is for mercury in groundwater due to past practices at Chlor-alkali plants using mercury cells located on the mill site.</p>
14 Odor		<p>DBeck: No federal odor requirements. Need to find out what the listed permit provisions actually require. Apparently the VA law only relates to landfills, not the pulp and paper processes.</p> <p>GFaison: UK facilities are required to have an overall odor management plan that categorizes and identified specific actions to control odors. No Federal requirements specifically address odor. At the GP facility, actions to address odor are required only for the solid waste landfills under Virginia state standards (Question 4).</p> <p>MCrooks: Washington has odor in our regulations, but it is only as a nuisance. The neighbors complain and the mill responds with a check of their mill to see if there is an upset condition, or a failure of a scrubber. It is possible under Washington regulations to take enforcement or issue an order to address odor problems.</p>
EMISSIONS TO GROUNDWATER	<p>EPA's GreenScapes program provides cost-efficient and environmentally friendly solutions for large-scale landscaping. Designed to help preserve natural resources and prevent waste and pollution, GreenScapes encourages companies to make more holistic decisions regarding waste generation and disposal and the associated impacts on land, water, air, and energy use. Companies that commit to undertake two or more greenscape projects can sign up as partners to the program.</p>	<p>DBeck: Need more detail in VA requirements – where do they monitor? What pollutants do they look for?</p> <p>MCrooks: The St. Regis permit application said there were no know direct or indirect emissions to groundwater. However, in the permit in section 2.42 and table 2.4.2 St. Regis is required to monitor several things in their groundwater on an annual basis. This appears to me to be very site specific, and is probably based on some past history. This kind of groundwater monitoring could also occur at a mill in the US, but it would probably have to be tied into a cleanup action plan.</p>

Requirement	US Voluntary Programs	Analysis Comments
5 WASTE HANDLING	<p>Ptrack and VEEP: Members can make commitments to improved waste handling.</p> <p>EPA's GreenScapes program provides cost-efficient and environmentally friendly solutions for large-scale landscaping. Designed to help preserve natural resources and prevent waste and pollution, GreenScapes encourages companies to make more holistic decisions regarding waste generation and disposal and the associated impacts on land, water, air, and energy use. Companies that commit to undertake two or more greenscape projects can sign up as partners to the program.</p>	<p>GFaison: The St. Regis permit states that the facility is not subject to waste management licensing requirements since the amount of waste paper stored is less than 15,000 tons (such licenses generally apply to facilities that dispose on site. Under UK requirements, a facility also cannot store the waste for longer than one year. A corresponding exemption is not part of the Virginia solid waste requirements, and the facility may be required to obtain a state solid waste disposal permit. However, additional conditions for application of the exemption focusing on risk of the activity does not make this a significant omission (Question 3).</p> <p><u>Question for Virginia regulator:</u> Would solid waste disposal scenario at the St. Regis facility require a solid waste permit in Virginia? For St. Regis, the permit is unclear whether the solid waste is disposed onsite or offsite, the PPC permit says only that the material “goes to landfill”.</p> <p>The St. Regis permit notes the management of special wastes which, at the time, included US -type hazardous wastes. The definitions of special waste was changed in 2005 to create a new category of hazardous waste. Hazardous waste/special waste regulations govern the movement, generation and disposal of those wastes, although no time limitation seem to apply as in the US. According to the permit, St. Regis does generate hazardous waste. It appears the UK requirements allow up to 200kg per year of hazardous waste to be generated before notification is required. The US SQG limit is 100 kg (Question 3).</p> <p><u>Question for St. Regis regulator:</u> Based on the amount of hazardous waste generated at the St. Regis site, are they exempt from any kind of regulation?</p> <p>UK prescribes requirements for all waste management and handling prior to final disposal. US has such requirements for hazardous waste and used oil (ie storage and transport) but not generally solid waste.(Subtitle D). UK has requirements to quantify origin, amount and composition of each waste stream (Qeustion 4).</p> <p>The St. Regis permits identifies waste receptors and pathways for waste management activities including the chemical, oil and sawdust – materials storage areas. According to the permits, a target investigation relating to theses activities was conducted. These analyses would be similar to the analyses conducted for industrial solid waste landfills in Virginia (Question 10).</p>

Requirement	US Voluntary Programs	Analysis Comments
2.6 WASTE RECOVERY AND DISPOSAL	<p>Ptrack and VEEP: Members can make commitments to increased waste recovery.</p> <p>EPA's GreenScapes program provides cost-efficient and environmentally friendly solutions for large-scale landscaping. Designed to help preserve natural resources and prevent waste and pollution, GreenScapes encourages companies to make more holistic decisions regarding waste generation and disposal and the associated impacts on land, water, air, and energy use. Companies that commit to undertake two or more greenscape projects can sign up as partners to the program.</p>	<p>DBeck: Unlike UK/EU system, there is no US requirement to justify disposal methods or look for better ones. No sewage sludge at St. Regis – so cannot compare to US requirements for sewage sludge.</p> <p>MCrooks: The sewage is sent underground in a closed pipe to join the untreated black liquor and be discharged out the outfall, which does not have a diffuser. If the mill had not closed, and secondary treatment had been added to the mill, the sewage would have to have been handled better and perhaps sewage sludge would have been produced. Without sewage treatment, there is nothing further possible to discuss on sludge for the St. Regis mill.</p>
ENERGY 1 Basic Energy uirements (1)		<p>DBeck: US system has no counterpart to the UK/EU requirements to supply energy use information and to try to optimize.</p> <p>MCrooks: Under the Energy - electrical use on page 47 of the permit application that is part of the permit by reference, compressed air is noted. If the mill had gone to secondary treatment and air compressors or aerators, electrical use would have gone up. That increase in energy would have to be added to the permit. A required amount of energy required for that treatment effort could be set up as a limit and be a surrogate method of measuring the amount of treatment the wastewater would be receiving.</p>
2 Basic Energy uirements (2)	<p>Ptrack and VEEP: Members can make commitments to reduced energy use.</p> <p>Climate Vision: The American Forest & Paper Association (AF&PA) will undertake efforts to improve energy efficiency as part of its efforts to meet its commitment to reduce greenhouse gas emissions.</p> <p>Energy Star: This EPA voluntary program encourages businesses to use energy-efficient products to minimize energy waste and reduce greenhouse gas emissions. A number of paper companies have signed on as partners, including: Atlas Paper, Erving Paper, Georgia-Pacific, and Weyerhaeuser.</p>	
3 Sector Specific Energy uirements		
ACCIDENTS AND THEIR NSEQUENCES		<p>DBeck: Need to find out if G-P has to have a Risk Management Plan per CAA 112(r) and then compare to UK reqts. [Placeholder - the interview guide contains a question asking whether the GP facility is subject to CAA 112(r).]</p> <p>MCrooks: The US permits do not include requirements for accidents. However, the US has other laws that address worker safety. The US mills have strong safety programs in place, and general make public their safety record. Most mills even have a large bill board that states the number of days since having a work loss accident. The Weyerhaeuser Longview mill has combined their environmental, health, and safety departments into one group under one manager responsible for all three functions at the mill. The US permits do include requirements for spills. The US mill must have a spill plan that as detailed as required by the St. Regis mill. Also, the US has developed an extensive spill response program, and here in Washington there are regular spill drills including the US Coast Guard, State of Washington spill responders, local spill responders (fire departments) and the mill spill response team.</p>
1 Identifying the Hazards		
2 Assessing the Risks		

Requirement	US Voluntary Programs	Analysis Comments
2.8.3 Techniques to Reduce the Risks		
NOISE AND VIBRATION	Prack members can make commitments to reduce noise and vibration impacts.	DBeck: No US requirement to systematically deal with noise and vibration, as is required in the UK. MCrooks: The St. Regis permit is the first time I have encountered requirements for vibration. We do have some city and county requirements concerning noise in Washington. Those local noise requirements are not included in our state agency's permits.
MONITORING		MCrooks: The St. Regis permit is very similar to US permits on monitoring. On page 58 of the St. Regis permit application is a list of conclusions for monitoring issues. Some of the conclusions are different from what would be required for a pulp mill in the US. One difference is the St. Regis permit application (which is part of the permit by reference) stated that continuous monitoring for pH is not justified at this time since historic test data shows that a variation form 6 to 8, which is not significant. However, steps will be taken to implement continuous pH monitoring as part of the improvement Programme by the end of 2001. US mill have continuous pH monitoring even though some of the US mills have a pH control system that produces a very stable pH of the final effluent. The St. Regis permit application on page 58 also states that continuous monitoring of temperature is not justified due to the large volume of the effluent flow which tends to minimize temperature variation. The effluent temperature is in the range of 30 to 38 C" and this will have a negligible environmental impact due to the large scale of the receptor (Severn Estuary). The US NPDES permits do have temperature requirements. In Washington many agencies are concerned about effluent temperature as a negative factor in salmon survival rates. In Washington there is the possiblity of doing total mass daily loading (TMDL) studies that would in effect establish daily loading for a pollutant. Temperature is considered a pollutant and a TMDL could be done for a receiving water body that would in effect set limits for temperature. Washington NPDES permits has a clause that would allow a permit to be opened to insert a limit for the mill resulting from a TMDL study.

Requirement	US Voluntary Programs	Analysis Comments
2.10.1 Emissions Monitoring		

Requirement	US Voluntary Programs	Analysis Comments
2.10.1.1 Monitoring and Reporting of Emissions to Water and Sewer		<p>Pretreatment for indirect discharge does not appear to be relevant for this sector. This may be important for other sectors.</p> <p>MCrooks: The monitoring table 2.10.1 on pabe 11 of the permit references the permit application pages 56 to 67 for monitoring requirements. The permit application monitoring requirements are very similar to US permits with a couple of exceptions. The St. Regis permit requires monitoring beyond the mill facility (i.e., the land onto which the sand separator rejects is spread), monitoring process variables, and the effluent sample analyses in the site laboratory are subject to ISO 14001 or ISO 9002. One other difference the UK and the US is the monitoring frequency. The US require much more frequent monitoring and reporting of results.</p>
.1.2 Monitoring and		<p>DBeck: Air monitoring requirements on the UK side appear to allow more judgment – such as “identify all substances released and what quantity to determine whether regular monitoring will be needed” (from UK Technical Guidance). However, the final St. Regis permit requirements may be more comparable. For some of the St. Regis vents, monitoring (testing?) is only required twice per year.</p>

Requirement	US Voluntary Programs	Analysis Comments
Reporting of Emissions to Air		
1.3 Monitoring and Reporting of Waste Emissions		DBeck: UK waste monitoring requirements seem to be broader, covering all kinds of waste with a focus on stewardship regarding waste generation. US focus is on “hazardous” waste.

Requirement	US Voluntary Programs	Analysis Comments
2.10.2 Environmental Monitoring (Beyond the Installation)		<p>DBeck: In the air arena, there usually aren't any requirements for individual facilities to monitor beyond their fencelines (although under New Source Review, facilities may be required to model the impact of increased emissions and determine their effects on sensitive surrounding areas).</p> <p>MCrooks: In Washington, our Title V air operating permits require aluminum smelters to conduct a vegetation study to monitor for vegetation effects from fluoride.</p>
2.10.3 Monitoring of Process Variables		<p>DBeck: There is no direct US counterpart to UK/EU requirement to monitor certain process variables. Nonetheless, US companies no doubt monitor all or many of these process variables in the normal course of business.</p> <p>MCrooks: Mills in Washington all have computer process systems that monitor the entire process. However, US permits have no requirements requiring this monitoring or any reporting of process data.</p>

Requirement	US Voluntary Programs	Analysis Comments
.4 Monitoring Standards (standard reference methods) .4.1 Equipment standards		

Requirement	US Voluntary Programs	Analysis Comments
2.10.4.2 Sampling and Analysis Standards		
DECOMMISSIONING		<p>DBeck: Both systems require a closure plan, but UK is more comprehensive, requiring facility design to include ultimate closure/cleanup considerations and providing for a “baseline” report with which to judge deterioration over time.</p> <p>MCrooks: UK decommissioning appears to be very similar to closure and cleanup in the US. RCRA and MTCA (Model Toxics Control Act) in Washington both have the same requirements as UK decommissioning. However, unlike the UK, the US does not include cleanup requirements in the NPDES permit.</p>
INSTALLATION-WIDE UES		<p>MCrooks: In the St. Regis permit section 2.12 is Multi-Operator installations. The permit states that the St. Regis mill is not a multi-operator installation. In the St. Regis permit application on page 67, section B 2.12 states that there are no installation-wide issues because St. Regis is the only operator of the installation. The US NPDES permits do not address this. A mill in Washington has other small plants discharge into the Weyerhaeuser industrial wastewater treatment plant. Weyerhaeuser is responsible for the discharge from their treatment plant, and the small plants each had a State of Washington Industrial permit on their discharge to Weyerhaeuser. So the NPDES permit for Weyerhaeuser has nothing in it concerning facility-wide issues, but does note that Weyerhaeuser is approved to accept waste from these small plants.</p>

Requirement	US Voluntary Programs	Analysis Comments
MISSION BENCHMARKS EMISSIONS INVENTORY D BENCHMARK MPARISON		<p>DBeck: US requirements column probably should list air quality criteria standards. Systems generally are similar in that sources are required to meet BAT/standards and in addition meet requirements related to maintaining ambient limits. Difficulty comparing “air” limits because they usually are in different units (mass vs. concentration), without enough information to make conversions from one set of units to the other. Where a comparison could be made, some particulate limits in the UK seem to be pretty stringent, comparable to tight US requirements. Will need to figure some way to get comparisons made.</p> <p>MCrooks: Both the UK and US use benchmarks or standards. The St. Regis permit is not all that different from US permits. However, there is one major difference, and that is more a policy decision by the UK to not force the St. Regis mill to go to secondary treatment. The UK allowed St. Regis to discharge untreated sewage and black liquor to an estuary on high tide. Here in the US I have read of how the tide brings effluent back into shore and a mixture of discharges may build up in the estuary. It is true that part of the improvement plan in the St. Regis permit does require a study for secondary treatment.</p>

Requirement	US Voluntary Programs	Analysis Comments
3.2 EMISSION BENCHMARKS 3.2.1 Standards and Obligations	Ptrack and VEEP members can make commitments to go beyond regulatory requirements in controlling air emissions and discharges to water.	
2 Units for Benchmarks and ing Limits in Permits		
3 Statistical Basis for chmarks and Limits in nits		
4 Reference Conditions for ases to Air		
BOD		MCrooks: The St. Regis application on page 73, B3.3:B.O.D. states that there is only (was only) one NSSC pulp mill in the UK. So there is no benchmark for BOD. The benchmark for BOD for a specialty paper mill is 1.3 kg BOD/ADT (air dried ton). The St. Regis mill had a BOD loading of 91 kg BOD/ADT because there was no secondary treatment. I am sure that any future US permit will have a requirement for BOD and/or COD.
COD		MCrooks: Same comment as for 3.3 BOD above. The St. Regis application on page 73, B3.3:C.O.D. states that there is no benchmark for COD for NSSC pulp mills in the UK. The benchmark for COD for a specialty paper mill is 7.0 1.3 kg COD/ADT. The St. Regis had a COD loading of 271 kg COS/ADT. Again, this was supposed to be resolved in the future under the improvement plan part of the permit.

Requirement	US Voluntary Programs	Analysis Comments
3.5 HALOGENS		MCrooks: The St. Regis permit application on page 73 discusses Halogens. The UK benchmark is 1 µg/l of Pentachlorophenol. The St. Regis mill had a five year average concentration of Pentachlorophenol of 0.342 1 µg/l. The St. Regis mill did not bleach its pulp. There is no limit for halogens in table 6.3.2 on page 21 of St. Regis' permit. The St. Regis mill does not bleach its pulp.
3.6 HEAVY METALS		MCrooks: According to the permit application on page 74, the St. Regis mill had hits on mercury, cadmium, copper lead, and zinc. The mercury sample was less than the benchmark. So the St. Regis permit in table 6.3.2 lists emission limits into water and lists a limit for cadmium, copper, lead, and zinc. There is no limit listed for mercury. Perhaps there is a study done in the past at the St. Regis mill that resolved the mercury issue. However, the permit application does not discuss any past mercury study. So it appears that since the benchmark was not reached over a five year period, there is not need to have a limit. In the St. Regis permit in table S2, quarterly monitoring for mercury is listed. Apparently any spike in mercury in the future might result in a limit for mercury.
NITROGEN OXIDES		
NUTRIENTS (Phosphates Nitrates)		MCrooks: Under B3.8 Nutrients on page 75 in the St. Regis permit application, it is stated that there is no benchmark for nutrients for a NSSC pulp mill. Here in Washington we also do not have limits for nutrients in our NPDES permits.

Requirement	US Voluntary Programs	Analysis Comments
3.9 PARTICULATE AND SUSPENDED SOLIDS		MCrooks: Section B3.9: Particulates and Suspended Solids on page 75 of the St. Regis permit application includes both suspended solids in wastewater and particulate emissions to air. I have looked at efforts in the past to do a multi-media permits, but this the first time I have seen water and air blended together in one section. The water and air discussion of solids fits together well. The US permits keep both subjects separate in permitting. If the US would begin to integrate our permits this would be a good section to start with. Unlike COD, the St. Regis mill is given a limit of 20 tonnes/day for suspended solids in their permit. That suspended solids limit is found in table 6.3.2 on page 21 of the St. Regis permit. The suspended monitoring frequency is daily. The US pulp mills all have total suspended solids (TSS) limits in their permits.
SULFUR DIOXIDE		
VOCs		

Requirement	US Voluntary Programs	Analysis Comments
4 IMPACT 4.1 ASSESSMENT OF THE IMPACT OF EMISSIONS ON THE ENVIRONMENT	Ptrack and VEEP upper tier members typically conduct impact assessments as part of their EMSs.	DBeck: No US requirements to assess impact of emissions on environment.
4.2 THE WASTE MANAGEMENT LICENSING REGULATIONS		MCrooks: The NPDES permits here in Washington contain a requirement for the permittee to write a solid waste plan and submit it to the state environmental agency. US pulp mills are like the St. Regis mill in that they really are not in the business of handling, storing, or disposing of wastes. So, the mills do not need landfill permits, etc.
THE HABITAT REGULATIONS	Ptrack and VEEP members can make commitments to restoring land and habit.	MCrooks: The St. Regis mill discusses environmental effects only in the future improvement plan part of the St. Regis mill in section 9.31 on page 30 of the permit. The US permits do not have any corresponding permit requirements. In the US, if there is ever any environmental concern, regulatory agency can investigate those concerns. If an emission or discharge is impacting the environment, an order or permit modification could be made by the regulatory agency.
		MCrooks: The St. Regis permit on page 13 through 16 describes in detail records, reporting, and notification requirements for the mill. This is the same case for US NPDES permits. To integrate the US NPDES permits and Title V air operating permits should be a rather simple matter.

Requirement	US Voluntary Programs	Analysis Comments
RECORDS, REPORTING, AND NOTIFICATION		
CARBON MONOXIDE		
DIOXIN		MCrooks: On page 73 in section B3.5: Halogens in the St. Regis permit application, the subject of chlorinated organics is discussed. For the St. Regis mill which does not bleach its pulp, dioxin is not an issue. However on the air side, if the woodwaste incinerator (hog fuel boilers in the US) burns salty hog fuel, dioxin could be an issue. So if another bleaching pulp mill were to use the UK permit application form, the Halogens section would include a lengthy discussion on chlorinated organics.
Additional U.S. Requirements		
Other		MCrooks: The St. Regis permit describes the facility in great detail compared to U.S. permits. In considering this level of detail within the U.S. context of permit experience, this implies that if it is not on the activity list, then it would be an illegal activity or an unpermitted activity. This is a constraint that American companies very likely would have a problem with because of possible future effects on their operation. Also, as the facility site plan may change over a five year permit term, would the permit manager have to modify the permit to update site plan changes? At first consideration, it would probably be a better option to make the site plan part of the fact sheet, or for St. Regis in the introductory note which is not part of the permit.